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Economic Analysis of Critical Habitat Designation for the Distinct Population Segments of Lower Columbia River Coho and Puget Sound Steelhead

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prepared for:

NOAA Fisheries

Northwest Region

prepared by:

Industrial Economics, Incorporated

2067 Massachusetts Avenue

Cambridge, MA 02140

617/354-0074

INDUSTRIAL ECONOMICS, INCORPORATED

TABLE OF CONTENTS

EXECUTIVE SUMMARY

SECTION 1 | INTRODUCTION

1.1 Introduction 1-1
1.2 Areas Assessed for Critical Habitat Designation 1-1
1.3 Brief Overview of Regional Demographics 1-9
1.4 Report Organization 1-10

SECTION 2 | FRAMEWORK AND BASELINE FOR THE ANALYSIS

2.1 Introduction 2-1
2.2 General Framework for the Economic Analysis 2-1
2.2.1 Benefit-Cost Analysis and Cost-Effectiveness Analysis 2-1
2.3 Impacts that are the Focus of this Analysis 2-4
2.3.1 Baseline for the Economic Analysis 2-6
2.3.2 Types of Economic Impacts of Critical Habitat Designation 2-17
2.4 Approach to Analysis of LCR Coho and PS Steelhead Critical Habitat 2-20
2.4.1 Define Geographic Study Area 2-21
2.4.2 Identify Potentially Affected Economic Activities and Determine How Management May Change 2-21
2.4.3 Estimate Associated Economic Impacts 2-24
2.4.4 Analytic Time Frame 2-31
2.4.5 Treatment of Uncertainties 2-32

SECTION 3 | INCREMENTAL IMPACTS

3.1 Introduction 3-1
3.2 Summary of Findings 3-1
3.3 Estimated Administrative Impacts 3-6
3.3.1 The Consultation Process 3-6
3.3.2 Administrative Section 7 Consultation Costs 3-7
3.3.3 Methodology 3-10
3.4 Incremental Project Modification Costs 3-12

APPENDIX A: INITIAL REGULATORY FLEXIBILITY ANALYSIS AND ENERGY IMPACTS ANALYSIS

APPENDIX B: LAWS AND REGULATIONS THAT MAY PROVIDE BASELINE PROTECTION FOR THE LOWER COLUMBIA RIVER COHO SALMON AND PUGET SOUND STEELHEAD

APPENDIX C: SUPPLEMENTAL ADMINISTRATIVE COST INFORMATION

EXECUTIVE SUMMARY

INTRODUCTION

The purpose of this report is to identify and analyze the potential economic impacts associated with the designation of critical habitat[1] for the Puget Sound steelhead (PS steelhead) and Lower Columbia River coho (LCR coho) under the U.S. Endangered Species Act (ESA). The analysis examines the potential impacts of restricting or modifying specific land or water use activities to avoid adverse modification or destruction of critical habitat for these species.

This report is intended to assess potential economic impacts of designating each area considered for designation as critical habitat for the PS steelhead and LCR coho. Similar to its analysis of critical habitat designation for West Coast salmon and steelhead[2], NOAA Fisheries has chosen to apply a cost-effectiveness framework to support the designation of critical habitat for the LCR coho and PS steelhead. This framework supports the section 4(b)(2) decision-making process by allowing NOAA Fisheries to compare an estimate of the "benefits of exclusion" against an indicator of the biological "benefits of inclusion" for any particular area.[3]

This economic analysis assesses the impacts associated with the designation of critical habitat while the Biological Report assesses the biological benefits associated with

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[1] Section 3(5)(A) of the ESA defines critical habitat as ''(i) the specific areas within the geographical area occupied by the species, at the time it is listed . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed . . . upon a determination by the Secretary that such areas are essential for the conservation of the species.'' Section 4(b)(2) of the ESA requires NOAA Fisheries to designate critical habitat for threatened and endangered species "on the basis of the best scientific data available and after taking into consideration the economic impact, impact on national security, and any other relevant impact, of specifying any particular area as critical habitat." In addition, "the Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines that the failure to designate such an area as critical habitat will result in the extinction of the species concerned."

[2] 70 FR 52630, September 2, 2005 – Final critical habitat designation for 12 DPSs of West Coast salmon and steelhead

[3] National Marine Fisheries Service, Northwest Fisheries Science Center. August 2005. Final Economic Analysis of Critical Habitat Designation for 12 West Coast Salmon and Steelhead DPSs.

designation and the ESA section 4(b)(2) Report weighs benefits of exclusion versus the benefits of including each particular area considered.[4] These other reports also present more detailed biological information regarding LCR coho and PS steelhead, including the presence of identified physical or biological features essential for conservation in the areas assessed for critical habitat designation.

APPROACH

This analysis examines the state of the world with and without the designation of critical habitat for PS steelhead and LCR coho. The "without critical habitat" scenario represents the baseline for the analysis, considering habitat protections already afforded these species under their Federal ESA listings or under other Federal, State, and local regulations, including protections afforded them from other listed salmonid species.[5] The "with critical habitat" scenario attempts to describe the incremental impacts associated with the designation of critical habitat for each species. While this analysis provides a qualitative discussion of baseline conservation efforts, including protections provided under the listing of the species, the focus of the analysis is determining the increment of costs that is attributable to critical habitat designation.

To quantify the economic impacts of modifications to land and water uses that result from critical habitat designation, the analysis employs the following three steps:

- Define the geographic study area for the analysis, and identify the units of analysis. In this case, fifth-field hydrologic unit codes (HUC) that intersect stream reaches assessed for critical habitat are defined as the study area to be analyzed for purposes of this analysis.[6]
- Based on the potentially affected economic activities, determine how management, including both project modification and administrative costs, may increase due to the designation of critical habitat for the species.
- Estimate the economic impacts associated with this change in management.

These steps are described in greater detail in Section 2.

RESULTS

[4] These reports by the National Marine Fisheries Service are available at http://www.nwr.noaa.gov/Salmon-Habitat

[5] Section 2 presents a comparison of the physical or biological features essential for conservation of the these species with those of bull trout and eulachon, as well as other salmonids.

[6] Under section 4(b)(2) of the ESA, the Secretary of Commerce may exclude a "particular area" from critical habitat designation based on a comparison of the benefits of excluding that area and the benefits of including it. The 4(b)(2) exclusion process therefore operates at a geographic scale that (potentially) divides the area(s) under consideration into smaller subareas. The statute does not specify the exact geographic scale of these subareas, nor does it dictate the form of the economic analysis and the nature of the impacts to be included in the analysis. This analysis defines these "particular areas" as fifth field HUCs (NMFS. 2012. Critical Habitat for Lower Columbia River Coho Salmon and Puget Sound Steelhead. Draft Biological Report. October 2012).

Critical habitat was assessed in a total of 122 watersheds in the States of Oregon and Washington (66 for the PS steelhead; 56 for the LCR coho). These watersheds cover an area of 13 million acres (7.4 million for PS steelhead; 5.7 for LCR coho). A high level of baseline protection already exists in areas occupied by PS steelhead and LCR coho, related both to protections afforded these species under the ESA, as well as related to protections afforded other listed species, especially other salmonid species. In particular, the areas assessed for LCR coho largely overlap existing critical habitat designations for the LCR Chinook, LCR steelhead, and Columbia River chum Distinct Population Segments (DPS).[7] The areas assessed for PS steelhead largely overlap designated critical habitat for PS Chinook and Hood Canal summer-run chum DPSs. Within the watersheds assessed for PS steelhead and LCR coho, a total of 1,716 consultation actions were recorded in NOAA's Public Consultation Tracking System (PCTS) database between 2001 and 2010, or approximately 172 actions annually.

Because of the high level of baseline protection in areas assessed for critical habitat, incremental conservation efforts specifically for these species related to activities occurring in potential critical habitat areas are considered to be unlikely for most areas. This is because, for most projects in these areas, the majority of conservation efforts benefitting LCR coho and PS steelhead are expected to be undertaken regardless of the presence of LCR coho and PS steelhead or their critical habitat. The presence of any salmonid species is considered a primary driver of the implementation of a conservation effort where prior salmon and steelhead listings have been well-established. In these cases, considering LCR coho and PS steelhead in consultations may require little additional effort, other than administrative effort, over and above that already expected to occur due to the presence of these species or other listed salmonid species. Thus, while proposed critical habitat areas may hold intrinsic conservation value for the species (e.g., watersheds preferred by spawning salmon), actions likely to be taken to protect those areas may not be very different with or without the designation.

This analysis quantifies projected future administrative costs of engaging in section 7 consultation activities that consider the PS steelhead and LCR coho and their critical habitats, as well as the impacts of project modifications requested by NOAA Fisheries during section 7 consultation in areas in the upper Elwha River basin not occupied at the time of listing by PS steelhead or Puget Sound Chinook salmon. We estimate the number of future consultations by consultation type and activity based on the past consultation history for listed species under NOAA Fisheries' jurisdiction in watersheds assessed for critical habitat designation. Then, using a model of consultation costs built from a survey of NOAA and Federal action agency efforts, each consultation is assigned an estimated

[7] Under the ESA, NOAA Fisheries can list species, subspecies or distinct population segments (DPS). For Pacific salmon such as LCR coho, NOAA Fisheries has adopted a policy that refers to a DPS as an "Evolutionarily Significant Unit". However, in this report we denote both as a DPSs so as not to confuse the reader.

level of administrative effort based on the type of activities expected to be the subject of the consultation.[8]

As shown in Exhibit ES-1, total annualized impacts of designating all areas assessed for critical habitat for LCR coho are estimated to be $358,000, and $461,000 for PS steelhead. Both 3 percent and 7 percent estimates[9] yield the same costs because the cost stream is constant throughout the 20 year time period analyzed. Exhibits ES-2 and ES-3 give total present value and annualized incremental impacts by HUC.

EXHIBIT ES-1. SUMMARY OF TOTAL ANNUALIZED CONSULTATION COSTS, DISCOUNTED AT THREE AND SEVEN PERCENT OVER 20 YEARS

ESU	ANNUALIZED COSTS	
	3 PERCENT	7 PERCENT
LCR coho	$358,000	$358,000
PS steelhead	$461,000	$461,000

EXHIBIT ES-2. SUMMARY OF ANNUAL INCREMENTAL COSTS, BY HUC: LCR COHO

HUC	NAME	PRESENT VALUE (SEVEN PERCENT)	PRESENT VALUE (THREE PERCENT)	ANNUALIZED (SEVEN PERCENT)	ANNUALIZED (THREE PERCENT)
1707010506	East Fork Hood River	$152,000	$206,000	$13,500	$13,500
1707010507	West Fork Hood River	$18,700	$25,300	$1,650	$1,650
1707010508	Hood River	$44,100	$59,600	$3,890	$3,890
1707010509	White Salmon River	$4,440	$6,000	$392	$392
1707010510	Little White Salmon River	$30,100	$40,700	$2,660	$2,660
1707010511	Wind River	$120,000	$163,000	$10,600	$10,600
1707010512	Middle Columbia/Grays Creek	$3,200	$4,330	$282	$282
1707010513	Middle Columbia/Eagle Creek	$51,400	$69,500	$4,540	$4,540
1708000101	Salmon River	$19,300	$26,100	$1,700	$1,700
1708000102	Zigzag River	$59,900	$81,000	$5,280	$5,280

[8] Annualized costs were generated for each HUC/watershed. In one case these costs were further parsed into tributary vs. mainstem corridor impacts (see Exhibit 3-2).

[9] Recommended by the U.S. Office of Management and Budget, Circular A-4, September 17, 2003.

HUC	NAME	PRESENT VALUE (SEVEN PERCENT)	PRESENT VALUE (THREE PERCENT)	ANNUALIZED (SEVEN PERCENT)	ANNUALIZED (THREE PERCENT)
1708000103	Upper Sandy River	$27,400	$37,000	$2,420	$2,420
1708000104	Middle Sandy River	$100,000	$135,000	$8,820	$8,820
1708000105	Bull Run River	$23,800	$32,200	$2,100	$2,100
1708000106	Washougal River	$39,400	$53,300	$3,480	$3,480
1708000107	Columbia Gorge Tributaries	$152,000	$205,000	$13,400	$13,400
1708000108	Lower Sandy River	$67,700	$91,600	$5,980	$5,980
1708000109	Salmon Creek	$191,000	$259,000	$16,900	$16,900
1708000201	Upper Lewis River	$1,270	$1,720	$112	$112
1708000202	Muddy River	$6,010	$8,120	$530	$530
1708000203	Swift Reservoir	$4,740	$6,410	$418	$418
1708000204	Yale Reservoir	$1,830	$2,470	$161	$161
1708000205	East Fork Lewis River	$135,000	$183,000	$11,900	$11,900
1708000206	Lower Lewis River	$21,900	$29,700	$1,940	$1,940
1708000301	Kalama River	$25,600	$34,600	$2,260	$2,260
1708000302	Beaver Creek/Columbia River	$68,700	$92,800	$6,060	$6,060
1708000303	Clatskanie River	$45,400	$61,400	$4,010	$4,010
1708000304	Germany/Abernathy	$101,000	$137,000	$8,940	$8,940
1708000305	Skamokawa/Elochoman	$70,200	$94,900	$6,190	$6,190
1708000306	Plympton Creek	$93,300	$126,000	$8,230	$8,230
1708000401	Headwaters Cowlitz River	$254	$343	$22	$22
1708000402	Upper Cowlitz River	$3,460	$4,670	$305	$305
1708000403	Cowlitz Valley Frontal	$26,900	$36,400	$2,370	$2,370
1708000404	Upper Cispus River	$2,600	$3,510	$229	$229
1708000405	Lower Cispus River	$19,700	$26,600	$1,740	$1,740
1708000501	Tilton River	$50,800	$68,700	$4,480	$4,480
1708000502	Riffe Reservoir	$20,600	$27,800	$1,820	$1,820
1708000503	Jackson Prairie	$0	$0	$0	$0
1708000504	North Fork Toutle River	$254	$343	$22	$22
1708000505	Green River	$254	$343	$22	$22
1708000506	South Fork Toutle River	$4,060	$5,490	$359	$359
1708000507	East Willapa	$58,300	$78,700	$5,140	$5,140
1708000508	Coweeman	$97,600	$132,000	$8,610	$8,610
1708000601	Youngs River	$123,000	$166,000	$10,800	$10,800
1708000602	Big Creek	$84,600	$114,000	$7,460	$7,460
1708000603	Grays Bay	$120,000	$162,000	$10,600	$10,600
1709000704	Abernethy Creek	$153,000	$207,000	$13,500	$13,500

HUC	NAME	PRESENT VALUE (SEVEN PERCENT)	PRESENT VALUE (THREE PERCENT)	ANNUALIZED (SEVEN PERCENT)	ANNUALIZED (THREE PERCENT)
1709001101	Collawash River	$16,000	$21,600	$1,410	$1,410
1709001102	Upper Clackamas River	$19,500	$26,400	$1,720	$1,720
1709001103	Oak Grove Fork Clackamas River	$19,500	$26,400	$1,720	$1,720
1709001104	Middle Clackamas River	$13,700	$18,500	$1,200	$1,200
1709001105	Eagle Creek	$32,200	$43,500	$2,840	$2,840
1709001106	Lower Clackamas River	$217,000	$293,000	$19,100	$19,100
1709001201	Johnson Creek	$264,000	$357,000	$23,300	$23,300
1709001202	Scappoose Creek	$168,000	$228,000	$14,900	$14,900
1709001203	Columbia Slough/Willamette River	$612,000	$827,000	$54,000	$54,000
N/A	Lower Columbia Corridor (Sandy/Washougal to Ocean)	$247,000	$334,000	$21,800	$21,800
	Total	**$4,050,000**	**$5,480,000**	**$358,000**	**$358,000**

Note: Totals may not sum due to rounding. Discounted at a seven percent discount rate.

The Lower Columbia River Corridor consists of the mainstem Columbia River downstream of HUCs 1708000106 and 1708000108.

EXHIBIT ES-3. SUMMARY OF INCREMENTAL COSTS, BY HUC: PS STEELHEAD

HUC	NAME	PRESENT VALUE (DISCOUNTED AT SEVEN PERCENT)	PRESENT VALUE (DISCOUNTED AT THREE PERCENT)	ANNUALIZED (DISCOUNTED AT SEVEN PERCENT)	ANNUALIZED (DISCOUNTED AT THREE PERCENT)
1711000201	Bellingham Bay	$102,000	$138,000	$8,970	$8,970
1711000202	Samish River	$202,000	$272,000	$17,800	$17,800
1711000204	Birch Bay	$87,900	$119,000	$7,760	$7,760
1711000401	Upper North Fork Nooksack River	$2,130	$2,880	$188	$188
1711000402	Middle Fork Nooksack River	$14,900	$20,100	$1,310	$1,310
1711000403	South Fork Nooksack River	$55,400	$74,900	$4,890	$4,890
1711000404	Lower North Fork Nooksack River	$34,600	$46,800	$3,050	$3,050
1711000405	Nooksack River	$86,700	$117,000	$7,650	$7,650
1711000504	Skagit River/Gorge Lake	$2,030	$2,750	$179	$179
1711000505	Skagit River/Diobsud Creek	$0	$0	$0	$0
1711000506	Cascade River	$0	$0	$0	$0
1711000507	Skagit River/Illabot Creek	$4,260	$5,760	$376	$376
1711000508	Baker River	$2,130	$2,880	$188	$188
1711000601	Upper Sauk River	$21,000	$28,400	$1,850	$1,850
1711000602	Upper Suiattle River	$0	$0	$0	$0
1711000603	Lower Suiattle River	$37,600	$50,800	$3,310	$3,310
1711000604	Lower Sauk River	$105,000	$142,000	$9,250	$9,250
1711000701	Middle Skagit River/Finney Creek	$78,200	$106,000	$6,900	$6,900
1711000702	Lower Skagit River/Nookachamps Creek	$122,000	$164,000	$10,700	$10,700
1711000801	North Fork Stillaguamish River	$86,100	$116,000	$7,590	$7,590
1711000802	South Fork Stillaguamish River	$80,100	$108,000	$7,070	$7,070
1711000803	Lower Stillaguamish River	$72,000	$97,300	$6,350	$6,350
1711000901	Tye And Beckler Rivers	$0	$0	$0	$0
1711000902	Skykomish River Forks	$38,400	$51,900	$3,390	$3,390
1711000903	Skykomish River/Wallace River	$39,000	$52,700	$3,440	$3,440
1711000904	Sultan River	$9,230	$12,500	$814	$814
1711000905	Skykomish River/Woods Creek	$69,800	$94,300	$6,160	$6,160
1711001003	Middle Fork Snoqualmie River	$49,500	$66,900	$4,360	$4,360
1711001004	Lower Snoqualmie River	$107,000	$144,000	$9,420	$9,420
1711001101	Pilchuck River	$75,700	$102,000	$6,680	$6,680
1711001102	Snohomish River	$379,000	$512,000	$33,400	$33,400
1711001201	Cedar River	$60,500	$81,800	$5,340	$5,340
1711001202	Lake Sammamish	$182,000	$246,000	$16,000	$16,000
1711001203	Lake Washington	$1,160,000	$1,570,000	$103,000	$103,000
1711001204	Sammamish River	$270,000	$365,000	$23,800	$23,800

HUC	NAME	PRESENT VALUE (DISCOUNTED AT SEVEN PERCENT)	PRESENT VALUE (DISCOUNTED AT THREE PERCENT)	ANNUALIZED (DISCOUNTED AT SEVEN PERCENT)	ANNUALIZED (DISCOUNTED AT THREE PERCENT)
1711001301	Upper Green River	$9,230	$12,500	$814	$814
1711001302	Middle Green River	$9,230	$12,500	$814	$814
1711001303	Lower Green River	$240,000	$325,000	$21,200	$21,200
1711001401	Upper White River	$8,940	$12,100	$789	$789
1711001402	Lower White River	$29,600	$40,000	$2,610	$2,610
1711001403	Carbon River	$29,500	$39,900	$2,600	$2,600
1711001404	Upper Puyallup River	$24,900	$33,600	$2,200	$2,200
1711001405	Lower Puyallup River	$144,000	$194,000	$12,700	$12,700
1711001502	Mashel/Ohop	$23,600	$31,900	$2,080	$2,080
1711001503	Lowland	$50,800	$68,700	$4,490	$4,490
1711001601	Prairie 1	$0	$0	$0	$0
1711001602	Prairie 2	$12,900	$17,400	$1,140	$1,140
1711001701	Skokomish River	$38,300	$51,800	$3,380	$3,380
1711001802	Lower West Hood Canal Frontal	$15,200	$20,600	$1,350	$1,350
1711001803	Hamma Hamma River	$0	$0	$0	$0
1711001804	Duckabush River	$339	$458	$30	$30
1711001805	Dosewallips River	$40,200	$54,300	$3,540	$3,540
1711001806	Big Quilcene River	$7,900	$10,700	$697	$697
1711001807	Upper West Hood Canal Frontal	$21,100	$28,600	$1,860	$1,860
1711001808	West Kitsap	$24,600	$33,200	$2,170	$2,170
1711001900	Kennedy/Goldsborough	$37,300	$50,500	$3,290	$3,290
1711001901	Puget	$176,000	$238,000	$15,500	$15,500
1711001902	Prairie 3	$40,900	$55,200	$3,600	$3,600
1711001904	Puget Sound/East Passage	$163,000	$220,000	$14,300	$14,300
1711001906	Chambers Creek	$9,890	$13,400	$873	$873
1711001908	Port Ludlow/Chimacum Creek	$34,300	$46,400	$3,030	$3,030
1711002001	Discovery Bay	$2,870	$3,890	$254	$254
1711002002	Sequim Bay	$2,130	$2,880	$188	$188
1711002003	Dungeness River	$30,500	$41,300	$2,690	$2,690
1711002004	Port Angeles Harbor	$19,900	$26,900	$1,750	$1,750
1711002007	Elwha River	$337,000	$456,000	$29,800	$29,800
Total		**$5,220,000**	**$7,060,000**	**$461,000**	**$461,000**

Note: Totals may not sum due to rounding.

For both LCR coho and PS steelhead, as shown in Exhibit ES-4, the largest expected number of consultations is related to in-stream work activities (which include activities such as boat, dock, and pier construction and repair, as well as others) and transportation projects. Because transportation consultations are numerous and have higher per-consultation administrative costs (see Exhibit 3-3), they represent the largest share of incremental administrative costs.

One HUC in the PS steelhead assessed area (Elwha River) contains habitat that was not occupied by steelhead at the time of listing, or designated as critical habitat for other listed salmonid species. As such, anticipated incremental administrative costs, as well as incremental costs associated project modifications in the Elwha River HUC are attributable to critical habitat designation for PS steelhead. Project modification costs, which are anticipated to be comprised largely of fish restoration actions, are estimated to be $135,000 per action, for a total of $319,000 over 20 years in that HUC (discounted at seven percent).

For PS steelhead, as shown in Exhibit ES-5, instream work activities represent 63 percent of total consultations and 42 percent of total annualized costs, while transportation projects are anticipated to comprise 19 percent of total section 7 consultations and 40 percent of total annualized costs. For LCR coho, instream work activities have the second largest number of consultations, but the third highest associated costs (behind transportation and water supply projects).

In Exhibit ES-6 and ES-7, incremental economic impacts are displayed geographically. For both LCR coho and PS steelhead, the greatest costs occur in HUCs located near major population centers, including Seattle, Washington, and Portland, Oregon.

EXHIBIT ES-4. PERCENTAGE OF TOTAL CONSULTATION AND ANNUALIZED COSTS, BY ACTIVITY: LCR COHO

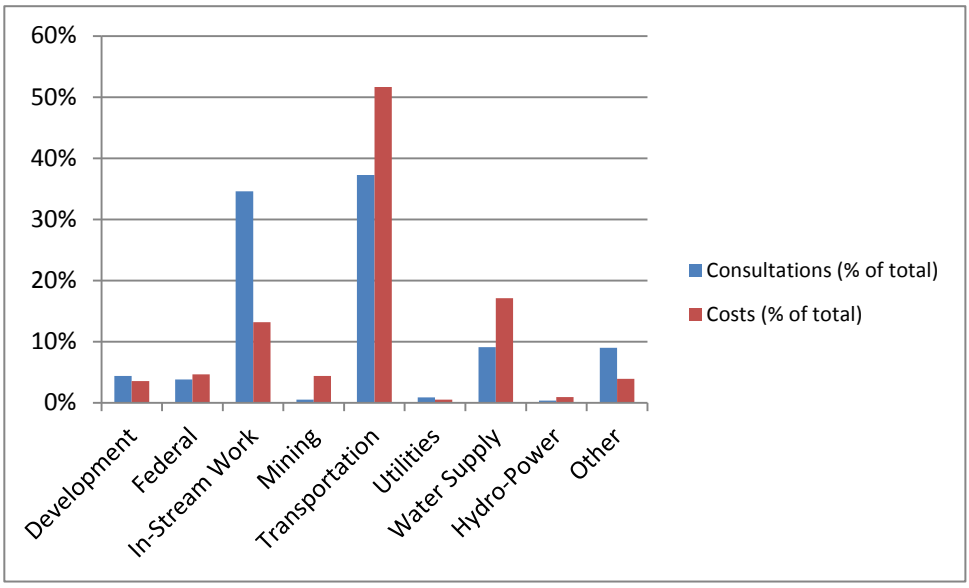


EXHIBIT ES-5. PERCENTAGE OF TOTAL CONSULTATION AND ANNUALIZED COSTS, BY ACTIVITY: PS STEELHEAD

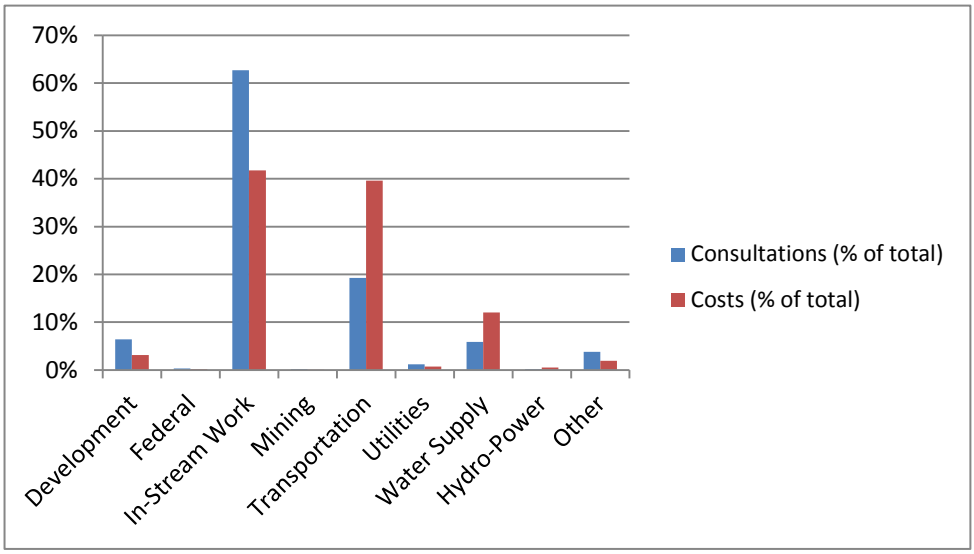


EXHIBIT ES-6. GEOGRAPHIC DISTRIBUTION OF ANNUALIZED IMPACTS BY UNIT: LOWER COLUMBIA RIVER COHO, IDENTIFYING HUCS WITH LARGEST COSTS (DISCOUNTED AT SEVEN PERCENT)

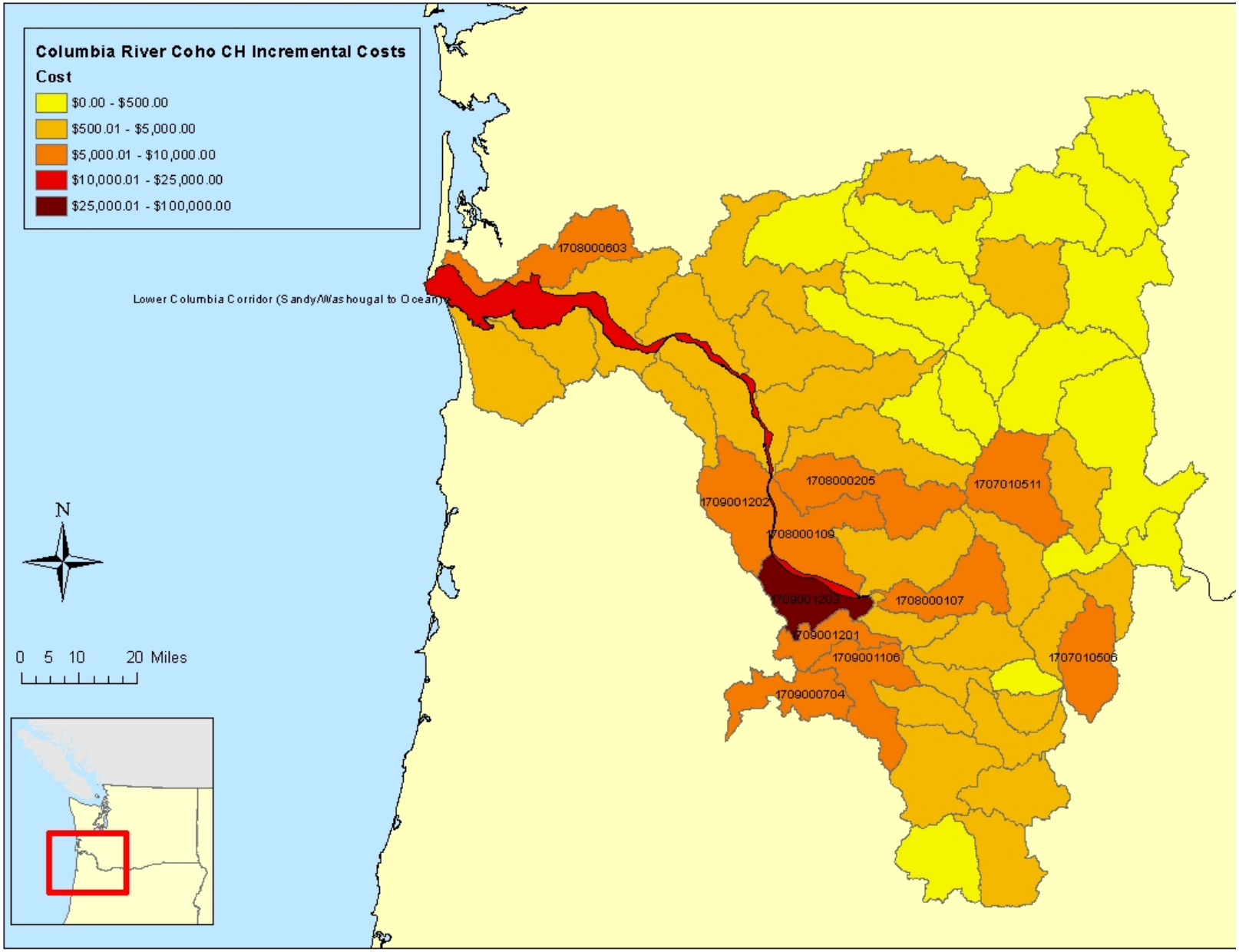
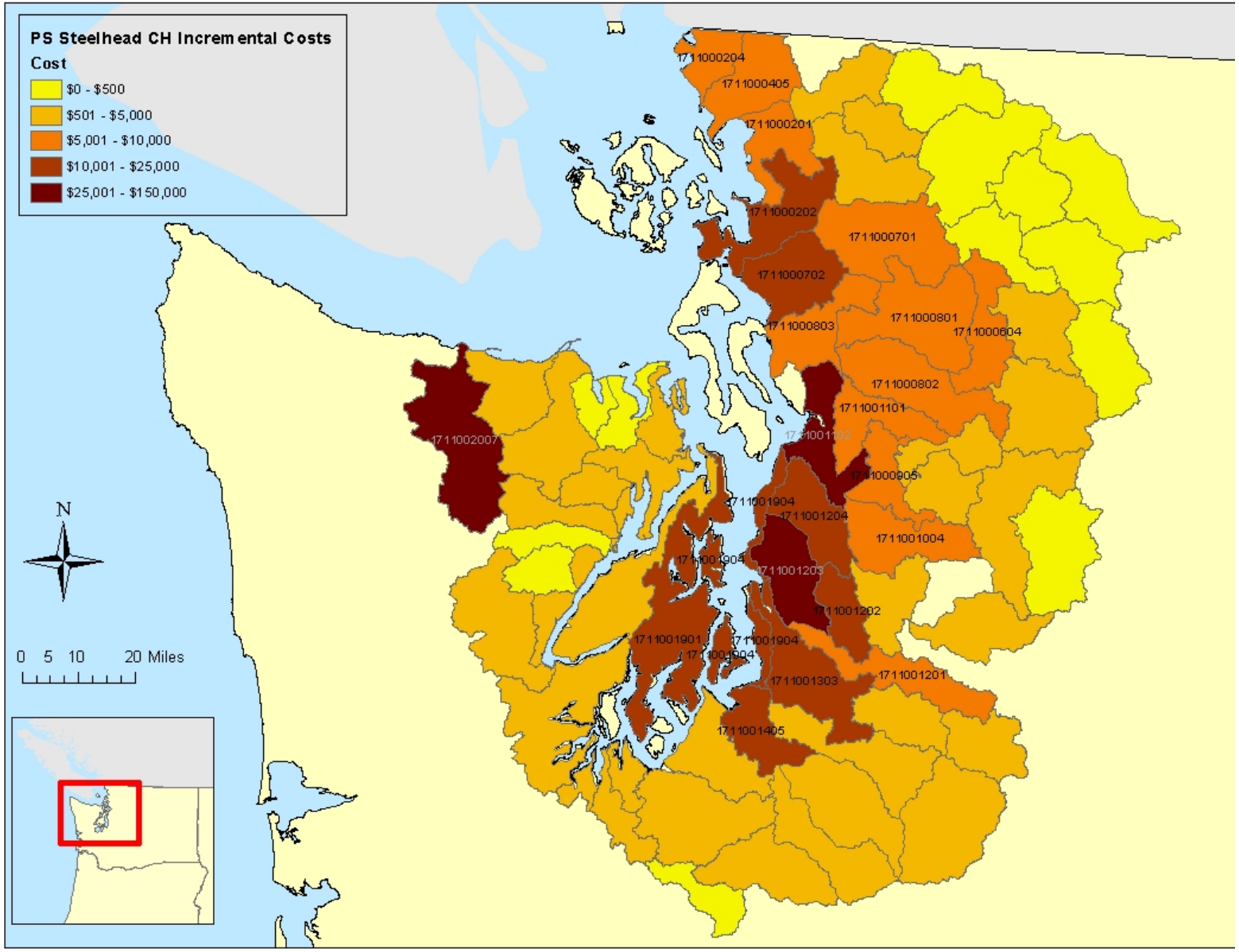


EXHIBIT ES-7. GEOGRAPHIC DISTRIBUTION OF ANNUALIZED IMPACTS BY UNIT: PUGET SOUND STEELHEAD,IDENTIFYING HUCS WITH LARGEST COSTS (DISCOUNTED AT SEVEN PERCENT)



SECTION 1 | INTRODUCTION

1.1 INTRODUCTION

The purpose of this report is to identify and analyze the potential economic impacts associated with designating ESA critical habitat for the Distinct Population Segment (DPS) of the Lower Columbia River coho salmon and the DPS of the Puget Sound steelhead (hereafter, "LCR coho" and "PS steelhead," respectively). The analysis examines the potential impacts of restricting or modifying specific land or water use activities to avoid adverse modification or destruction of critical habitat.

This section provides a brief introduction to the process for designating critical habitat for LCR coho and PS steelhead. It includes a summary of threats to the species' habitat, and maps of stream reaches assessed and the surrounding study area.

1.2 AREAS ASSESSED FOR CRITICAL HABITAT DESIGNATION

On June 28, 2005, NOAA Fisheries released a multi-species final rule, listing the Lower Columbia River coho salmon evolutionarily significant unit (ESU),[10] along with 15 other salmonid DPSs, as threatened under the ESA.[11] Later, on May 11, 2007, NOAA Fisheries listed the DPS of steelhead in Puget Sound[12] as threatened under the ESA.[13] As stated in the listing rules, LCR coho and PS steelhead are endemic to the northeastern Pacific Ocean and watersheds of the lower Columbia River and Puget Sound, respectively. The listing rules state that the primary factors responsible for the decline of the species are the destruction, modification, or curtailment of habitat and inadequacy of existing regulatory mechanisms.

Areas assessed as possible critical habitat for LCR coho and PS steelhead include a total of 6,737 river miles (respectively 3,232 river miles and 3,505 river miles) of coastal riverine habitat in Washington and Oregon in 122 watersheds. Exhibits 1-1 and 1-2

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[10] As noted in the Executive Summary, NOAA Fisheries can list species, subspecies or distinct population segments under the ESA. For Pacific salmon such as LCR coho, NOAA Fisheries has adopted a policy that refers to a DPS as an "Evolutionarily Significant Unit". However, in this report we denote both as DPSs for simplicity. LCR coho covered by the listing include all naturally spawned populations of coho salmon in the Columbia River and its tributaries in Washington and Oregon, from the mouth of the Columbia up to and including the Big White Salmon and Hood Rivers, and includes the Willamette River to Willamette Falls, Oregon, as well as twenty-five artificial propagation programs.

[11] 70 FR 37160.

[12] PS steelhead covered by the listing include all naturally spawned anadromous *O. mykiss* (steelhead) populations, from streams in the river basins of the Strait of Juan de Fuca, Puget Sound, and Hood Canal, Washington, bounded to the west by the Elwha River (inclusive) and to the north by the Nooksack River and Dakota Creek (inclusive), as well as the Green River natural and Hamma Hamma winter-run steelhead hatchery stocks.

[13] 72 FR 26722.

present river miles by watershed in map form. Exhibits 1-3 and 1-4 present river miles by watershed in tabular form. Exhibit 1-5 summarizes the physical and biological features essential for LCR coho and PS steelhead conservation. This report describes and quantifies potential economic impacts associated with areas assessed for critical habitat designation for the LCR coho and PS steelhead, focusing on economic activities and resource uses that NOAA Fisheries has identified as a potential threat, including transportation, in-stream construction, water supply, development, federal lands management, utilities, mining, and hydropower activity.

EXHIBIT 1-1. AREA ASSESSED FOR LOWER COLUMBIA RIVER COHO CRITICAL HABITAT

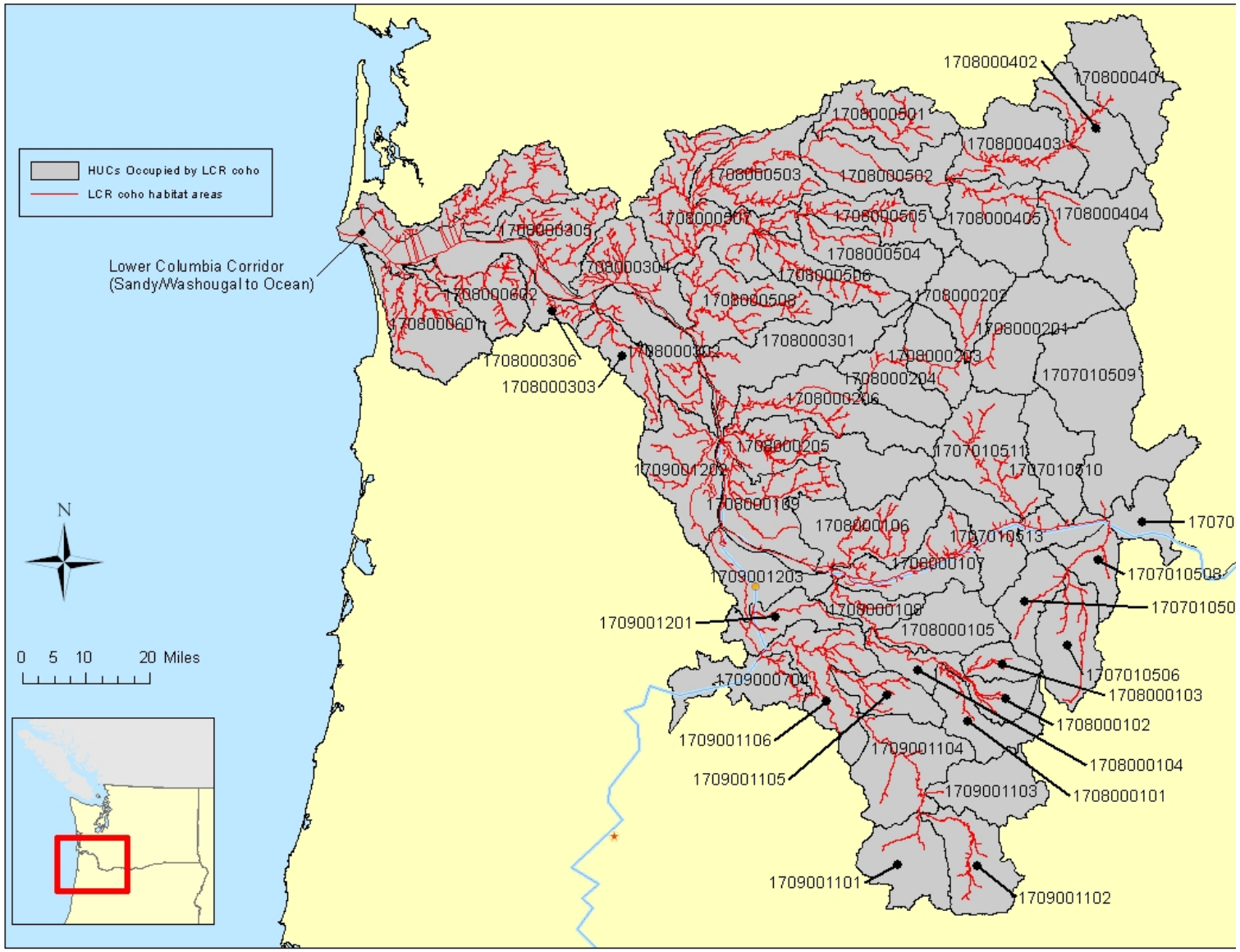


EXHIBIT 1-2. AREAS ASSESSED FOR PUGET SOUND STEELHEAD CRITICAL HABITAT

EXHIBIT 1-3. AREAS ASSESSED FOR LOWER COLUMBIA RIVER COHO HABITAT, BY WATERSHED AND RIVER MILES OF COHO HABITAT

HUC	NAME	RIVER MILES
1707010506	East Fork Hood River	47.9
1707010507	West Fork Hood River	18.3
1707010508	Hood River	21.4
1707010509	White Salmon River	3.7
1707010510	Little White Salmon River	1.7
1707010511	Wind River	76.2
1707010512	Middle Columbia/Grays Creek	22.1
1707010513	Middle Columbia/Eagle Creek	20.4
1708000101	Salmon River	22.6
1708000102	Zigzag River	23.4
1708000103	Upper Sandy River	22.1
1708000104	Middle Sandy River	33.0
1708000105	Bull Run River	12.1
1708000106	Washougal River	83.7
1708000107	Columbia Gorge Tributaries	97.9
1708000108	Lower Sandy River	35.1
1708000109	Salmon Creek	119.7
1708000201	Upper Lewis River	18.5
1708000202	Muddy River	28.1
1708000203	Swift Reservoir	37.0
1708000204	Yale Reservoir	32.6
1708000205	East Fork Lewis River	83.3
1708000206	Lower Lewis River	99.4
1708000301	Kalama River	26.9
1708000302	Beaver Creek/Columbia River	55.6
1708000303	Clatskanie River	60.5
1708000304	Germany/Abernathy	91.2
1708000305	Skamokawa/Elochoman	119.1
1708000306	Plympton Creek	31.2
1708000401	Headwaters Cowlitz River	8.3
1708000402	Upper Cowlitz River	38.0
1708000403	Cowlitz Valley Frontal	67.5
1708000404	Upper Cispus River	21.1
1708000405	Lower Cispus River	46.1
1708000501	Tilton River	65.6
1708000502	Riffe Reservoir	43.8
1708000503	Jackson Prairie	147.2
1708000504	North Fork Toutle River	29.5
1708000505	Green River	69.2
1708000506	South Fork Toutle River	90.6
1708000507	East Willapa	214.7
1708000508	Coweeman	130.3
1708000601	Youngs River	130.4
1708000602	Big Creek	78.4
1708000603	Grays Bay	164.5
1709000704	Abernethy Creek	27.0

HUC	NAME	RIVER MILES
1709001101	Collawash River	16.8
1709001102	Upper Clackamas River	49.1
1709001103	Oak Grove Fork Clackamas River	4.3
1709001104	Middle Clackamas River	44.9
1709001105	Eagle Creek	39.6
1709001106	Lower Clackamas River	98.2
1709001201	Johnson Creek	40.7
1709001202	Scappoose Creek	97.2
1709001203	Columbia Slough/Willamette River	25.0
N/A	Lower Columbia Corridor (Sandy/Washougal to Ocean)[2]	131.5
Total		**3,231.6**

Notes:

1. Totals may not sum due to rounding.
2. The Lower Columbia River Corridor consists of the mainstem Columbia River downstream of HUCs 1708000106 and 1708000108.

Source: Written communication with NOAA Fisheries, October27, 2011.

EXHIBIT 1-4. AREAS ASSESSED FOR PUGET SOUND STEELHEAD HABITAT, BY WATERSHED AND RIVER MILES OF STEELHEAD HABITAT

HUC	NAME	RIVER MILES
1711000201	Bellingham Bay	19.5
1711000202	Samish River	59.4
1711000204	Birch Bay	37.6
1711000401	Upper North Fork Nooksack River	33.6
1711000402	Middle Fork Nooksack River	17.5
1711000403	South Fork Nooksack River	80.4
1711000404	Lower North Fork Nooksack River	81.0
1711000405	Nooksack River	113.1
1711000504	Skagit River/Gorge Lake	6.1
1711000505	Skagit River/Diobsud Creek	32.1
1711000506	Cascade River	38.8
1711000507	Skagit River/Illabot Creek	50.6
1711000508	Baker River	42.0
1711000601	Upper Sauk River	48.5
1711000602	Upper Suiattle River	12.1
1711000603	Lower Suiattle River	37.7
1711000604	Lower Sauk River	55.3
1711000701	Middle Skagit River/Finney Creek	127.8
1711000702	Lower Skagit River/Nookachamps Creek	81.8
1711000801	North Fork Stillaguamish River	137.6
1711000802	South Fork Stillaguamish River	137.9
1711000803	Lower Stillaguamish River	75.8
1711000901	Tye And Beckler Rivers	33.1

HUC	NAME	RIVER MILES
1711000902	Skykomish River Forks	65.2
1711000903	Skykomish River/Wallace River	49.2
1711000904	Sultan River	10.2
1711000905	Skykomish River/Woods Creek	72.0
1711001003	Middle Fork Snoqualmie River	71.4
1711001004	Lower Snoqualmie River	127.6
1711001101	Pilchuck River	65.7
1711001102	Snohomish River	154.3
1711001201	Cedar River	43.6
1711001202	Lake Sammamish	41.5
1711001203	Lake Washington	61.5
1711001204	Sammamish River	56.3
1711001301	Upper Green River	26.2
1711001302	Middle Green River	41,1
1711001303	Lower Green River	112.0
1711001401	Upper White River	47.9
1711001402	Lower White River	75.3
1711001403	Carbon River	55.7
1711001404	Upper Puyallup River	45.5
1711001405	Lower Puyallup River	47.2
1711001502	Mashel/Ohop	68.1
1711001503	Lowland	93.1
1711001601	Prairie 1	36.2
1711001602	Prairie 2	27.2
1711001701	Skokomish River	88.2
1711001802	Lower West Hood Canal Frontal	5.4
1711001803	Hamma Hamma River	4.4
1711001804	Duckabush River	9.3
1711001805	Dosewallips River	14.6
1711001806	Big Quilcene River	7.0
1711001807	Upper West Hood Canal Frontal	35.1
1711001808	West Kitsap	77.5
1711001900	Kennedy/Goldsborough	118.6
1711001901	Puget	81.4
1711001902	Prairie 3	20.6
1711001904	Puget Sound/East Passage	3.4
1711001906	Chambers Creek	16.8
1711001908	Port Ludlow/Chimacum Creek	21.3
1711002001	Discovery Bay	15.1
1711002002	Sequim Bay	9.0
1711002003	Dungeness River	58.3
1711002004	Port Angeles Harbor	53.9
1711002007	Elwha River	52.5 [2]
Total		**3,504.6**

Notes:
1. Totals may not sum due to rounding.
2. Includes approximately 45 miles of unoccupied historical habitat.
Source: Written communication with NOAA Fisheries, October 27, 2011.

EXHIBIT 1-5. PHYSICAL AND BIOLOGICAL FEATURES ESSENTIAL FOR CONSERVATION OF LCR COHO AND PS STEELHEAD

CATEGORY	ESSENTIAL FEATURE
FRESHWATER FOR SPAWNING AND REARING	
Water Quantity and Quality	Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development. Also, freshwater rearing sites with water quantity, water quality, and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility.
Food	Forage supporting juvenile development.
Cover	Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks
FRESHWATER AND ESTUARINE MIGRATION CORRIDORS	
Migratory Corridor	Free of obstruction with natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival. Also, aquatic invertebrates and fishes supporting growth and maturation.
Water Quantity and Quality	Water quality, quantity and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater.
Food	Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.
NEARSHORE AND OFFSHORE MARINE FORAGING SITES	
Food	Forage including aquatic invertebrates and fishes, supporting growth and maturation
Cover	Free of obstruction with natural cover such as submerged and overhanging large wood, aquatic vegetation.
Water Quantity and Quality	Nearshore marine areas with water quality and quantity conditions supporting growth and maturation.
Source: 2005 CHD for 19 DPSs of West Coast Salmon and Steelhead (70 FR 52488, September 2, 2005; 70 FR 52630, September 2, 2005)	

Under section 4(b)(2) of the ESA, the Secretary of Commerce may exclude a "particular area" from critical habitat designation if the benefits of excluding that area outweigh the benefits of including it. The 4(b)(2) exclusion process therefore operates at a geographic scale that (potentially) divides the area(s) under consideration into smaller subareas. The statute does not specify the exact geographic scale of these subareas, nor does it dictate the form of the economic analysis and the nature of the impacts to be included in the analysis.

NMFS has defined these "particular areas" for analysis[14] using a standard watershed unit, as mapped by the U.S. Geological Service and described by ten-digit, fifth-field hydrologic unit codes (referred to in this report as HUCs, or simply "watersheds") in Oregon and Washington. In total, the study area comprises 13.1 million acres (5.7 million acres of LCR coho habitat, 7.4 million acres of PS steelhead riverine habitat) and includes critical habitat in 122 HUCs (56 containing potential LCR coho critical habitat, 66 containing potential PS steelhead critical habitat). A separate biological report[15] and a 4(b)(2) report[16] describes the manner in which NMFS defined and assessed specific areas and particular areas.

1.3 BRIEF OVERVIEW OF REGIONAL DEMOGRAPHICS

The 122 watersheds that contain areas assessed for critical habitat for the LCR coho and PS steelhead intersect 23 counties in Washington (17 counties) and Oregon (6 counties). The overall population of these counties was 5.8 million in 2008, as presented in Exhibit 1-6. The largest population center in the study area counties is the Seattle, Washington area (King County, Washington).[17] Clark County, Washington, exhibited the fastest recent population growth of study area counties, increasing population by 23 percent between 2000 and 2008, which is more than twice the national average. Study area counties as a whole displayed higher population growth rates than the national average between 2000 and 2008. Specifically, the population of study area counties grew by 12.2 percent during this time period, while the overall U.S. population increased by 9.7 percent.

EXHIBIT 1-6. AREA AND POPULATION STATISTICS BY COUNTY

COUNTY	POPULATION (2008)	PERCENTAGE CHANGE (2000-2008)	AREA (SQUARE MILES)	POPULATION DENSITY (PERSONS PER SQUARE MILE)
Washington				
Clallam County	64,525	10.7%	2,670	24
Clark County	345,238	23.2%	656	526

[14] For this designation, NMFS analyzed two types of "particular" areas. Where we considered economic impacts, and weighed the economic benefits of exclusion against the conservation benefits of designation, we used the same biologically-based "specific" areas we had identified under section 3(5)(A). Specifically, these particular areas were occupied freshwater and estuarine areas within individual HUC5 watersheds.

[15] NMFS. 2012. Critical Habitat for Lower Columbia River Coho Salmon and Puget Sound Steelhead. Draft Biological Report. October 2012.

[16] NMFS. 2012. Critical Habitat for Lower Columbia River Coho Salmon and Puget Sound Steelhead. Draft 4(b)(2) Report. October 2012.

[17] US Census data. Retrieved on August 2, 2011. Available at: http://quickfacts.census.gov/qfd/states/01000.html

COUNTY	POPULATION (2008)	PERCENTAGE CHANGE (2000-2008)	AREA (SQUARE MILES)	POPULATION DENSITY (PERSONS PER SQUARE MILE)
Cowlitz County	92,948	10.2%	1,166	80
Jefferson County	25,953	15.1%	2,184	12
King County	1,737,034	11.2%	2,307	753
Kitsap County	231,969	8.3%	566	410
Klickitat County	19,161	6.0%	1,904	10
Lewis County	68,600	10.0%	2,436	28
Mason County	49,405	22.9%	1,051	47
Pacific County	20,984	-0.3%	1,224	17
Pierce County	700,820	13.5%	1,807	388
Skagit County	102,979	13.5%	1,920	54
Skamania County	9,872	12.1%	1,684	6
Snohomish County	606,024	17.7%	2,196	276
Thurston County	207,355	21.7%	774	268
Wahkiakum County	3,824	4.0%	287	13
Whatcom County	166,814	20.6%	2,504	67
Oregon				
Clackamas County	338,391	11.1%	1,868	181
Clatsop County	35,630	4.0%	827	43
Columbia County	43,560	13.3%	657	66
Hood River County	20,411	9.5%	522	39
Marion County	284,834	10.7%	1,185	240
Multnomah County	660,486	11.3%	435	1,518
Study Area Total	**5,836,817**	**12.2%**	**32,830**	**220.3**
Washington Total	4,453,505	13.0%	27,336	175.2
Oregon Total	1,383,312	10.0%	5,494	347.8
United States	304,059,724	9.7%		

Source: US Census data. Retrieved on April 1, 2010. Available at: http://quickfacts.census.gov/qfd/states/01000.html

1.4 REPORT ORGANIZATION

The remainder of this report includes the following sections:

- Section 2. This section describes the framework and baseline for this analysis.
- Section 3. This section describes potential incremental impacts resulting from the designation of critical habitat for the LCR coho and PS steelhead DPSs.
- Appendix A. This appendix presents the Initial Regulatory Flexibility Analysis.
- Appendix B. This appendix summarizes laws and regulations that may provide baseline protection for LCR coho and PS steelhead.

- Appendix C. This section provides additional cost data on quantified administrative and project modification costs.

SECTION 2 | FRAMEWORK AND BASELINE FOR THE ANALYSIS

2.1 INTRODUCTION

This analysis examines the potential impacts of restricting or modifying specific land or water uses or activities, as identified by National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), to avoid adverse modification or destruction of critical habitat. This chapter presents the framework applied to analyze the economic impacts of critical habitat designation, and includes a description of baseline protections already in place that benefit the species.

2.2 GENERAL FRAMEWORK FOR THE ECONOMIC ANALYSIS

Similar to its analysis of critical habitat designation for West Coast salmon and steelhead, NOAA Fisheries has chosen to apply a cost-effectiveness framework to support the designation of critical habitat for the LCR coho and PS steelhead. This framework supports the section 4(b)(2) decision-making process by allowing NOAA Fisheries to compare an estimate of the "benefits of exclusion" against an indicator of the biological "benefits of inclusion" for any particular area.[18]

This economic analysis assesses the impacts associated with the designation of critical habitat while the Biological Report assesses the biological benefits associated with designation and the ESA section 4(b)(2) Report weighs benefits of exclusion versus the benefits of including each particular area considered.[19] These other reports also present more detailed biological information regarding LCR coho and PS steelhead, including the presence of identified physical or biological features essential for conservation in the areas assessed for critical habitat designation.

2.2.1 BENEFIT-COST ANALYSIS AND COST-EFFECTIVENESS ANALYSIS

When economic activities have biological effects or other consequences for conservation, analyses of the impacts of regulating those activities can take a number of approaches. Two possible approaches are benefit-cost analysis and cost-effectiveness analysis. Each of these approaches has strong scientific support as well as support from the Office of Management and Budget (OMB) through its guidelines on regulatory analysis.[20] Each

[18] National Marine Fisheries Service, Northwest Fisheries Science Center. August 2005. Final Economic Analysis of Critical Habitat Designation for 12 West Coast Salmon and Steelhead DPSs.

[19] These reports by the National Marine Fisheries Service are available at http://www.nwr.noaa.gov/Salmon-Habitat

[20] U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf.

also has well known drawbacks, both theoretical and practical, as discussed in the following section in the context of critical habitat designation.

Benefit-cost analysis (BCA) is the first choice for analyzing the consequences of a regulatory action such as critical habitat designation.[21] BCA is a well-established procedure for assessing the "best" course or scale of action, where "best" is that course which maximizes net benefits.[22] Because BCA assesses the value of an activity in net benefit terms, it requires that a single metric, most commonly dollars, be used to gauge both benefits and costs. Although the data and economic models necessary to estimate costs may be difficult or costly to gather and develop, expressing costs in dollars is straightforward for most regulatory actions. This is often the case for critical habitat designation, which has direct impacts on activities carried out, funded, or permitted by the Federal government. However, while assessing the benefits of critical habitat designation in a BCA framework is straightforward in principle, it is much more difficult in practice. To the extent that the critical habitat provisions of the ESA increase the protections afforded the LCR coho and PS steelhead and their habitat, they produce real benefits to the species. In principle, these benefits can be measured first by a biological metric, and then by a dollar metric. A biological metric could take the form of the expected decrease in extinction risk, increase in number of spawners, increase in the annual population growth rate, and so forth. A BCA would then use this metric to assess the state of the species with and without critical habitat designation. This assessment would reveal the biological impact of designation, quantified in terms of the metric. However, the available data are insufficient to quantify the benefits of designating critical habitat for LCR coho and PS steelhead, particularly with respect to discrete geographical areas.

Recognizing the difficulty of estimating economic benefits in cases like critical habitat designation, OMB has acknowledged cost-effectiveness analysis (CEA) as an appropriate alternative to BCA:

> Cost-effectiveness analysis can provide a rigorous way to identify options that achieve the most effective use of the resources available without requiring monetization of all of [the] relevant benefits or costs. Generally, cost-effectiveness analysis is designed to compare a set of regulatory actions with the same primary outcome (e.g., an increase in the acres of wetlands protected) or multiple outcomes that can be integrated into a single numerical index (e.g., units of health improvement).[23]

Ideally, CEA quantifies both the benefits and costs of a regulatory action but uses different metrics for each. A common application of this method is to health care

[21] Ibid.

[22] Zerbe, R., and D. Dively, 1994. Benefit Cost Analysis in Theory and Practice, New York: HarperCollins.

[23] Ibid.

strategies, where the benefits of a strategy are quantified in terms of lives saved, additional years of survival, or some other quantitative, health-related measure.

In principle, conducting a CEA of critical habitat designation proceeds along the same lines identified above for BCA, except that the last step of assigning economic (dollar) values to biological benefits is not taken. Different configurations of critical habitat could be gauged by both metrics, with the cost-effectiveness (ratio of units of biological benefits to monetized cost) evaluated in each case. If alternatives have the same level of biological benefits, the most cost-effective is the one with the highest ratio of biological benefits to cost (either in the form of monetized costs or some other cost metric or cost ranking).

Standard CEA presumes that benefits and costs can be measured with a cardinal or even continuous measure. For critical habitat designations in general, however, constructing such a measure for biological benefits is problematic. Although protecting habitat for LCR coho and PS steelhead is likely to have benefits, it is not yet possible to quantify the benefits reliably with a single biological metric given the state of the science. Thus, applying CEA in its standard form is not possible.

The alternative form of CEA being applied to the LCR coho and PS steelhead analysis is one that develops an ordinal measure of the benefits of critical habitat designation. Although it is difficult to monetize or quantify benefits of critical habitat designation, it is possible to differentiate among habitat areas based on their estimated relative conservation value. For example, habitat areas can be rated as having a high, medium, or low conservation value. This exercise is reported in the Biological Report, and is not included as part of the economic analysis. The output to that biological analysis, a qualitative ordinal ranking, may better reflect the state of the science for the geographic scale considered here than a quantified output, and can be done with available information.

In the current methodology, individual habitat areas are assessed using both their biological evaluation and economic cost assessments. Generally, areas with high conservation value and lower economic impacts are given a higher priority for designation, and areas with a low conservation value and higher economic impacts have a higher priority for exclusion. Again, these analyses are discussed in the Biological Report and the ESA section 4(b)(2) report for the agency's rulemaking.

By proceeding in order of these priorities (either in terms of inclusion or exclusion), the areas assessed for critical habitat will minimize, or at least (in practice) reduce, the overall economic costs of achieving any given level of conservation. This form of CEA has two limitations, one of which it shares with the standard form of CEA. First, because CEA does not evaluate benefits and costs in the same metric, the analysis cannot assess whether a given change has benefits that, in monetary terms, are greater than costs. Although this analysis arrives at estimated economic costs on a per area basis, uncertainty exists with regard to these costs. Nonetheless, because the comparison of costs is to biological values that are classified into high, medium, and low values, the coarseness of the available cost information should suffice to produce an effective tool for balancing

costs and benefits. A second limitation of the modified form of CEA is the inability to discern variation in benefits among those areas assigned the same conservation value (i.e., the same ordinal ranking). A likely outcome is that using the modified CEA will lead to an outcome with higher expected costs of achieving any given level of conservation than one produced with standard CEA or BCA. This limitation, however, should be compared to the greater feasibility of the modified CEA.

2.3 IMPACTS THAT ARE THE FOCUS OF THIS ANALYSIS

This analysis examines the state of the world with and without the designation of critical habitat for the LCR coho and PS steelhead. The "without critical habitat" scenario represents the baseline for the analysis, considering habitat protections already afforded LCR coho and PS steelhead under their Federal listings or under other Federal, State, and local regulations, including protections afforded LCR coho and PS steelhead resulting from protections afforded other listed species, such as other West Coast salmon and steelhead, green sturgeon, bull trout, eulachon, and marine mammal species. Also included under the baseline are protections afforded LCR coho and PS steelhead under the ESA other than critical habitat. The "with critical habitat" scenario attempts to describe the incremental impacts associated specifically with the designation of critical habitat for the LCR coho and PS steelhead. While this analysis provides a qualitative discussion of baseline conservation efforts, including protections provided under the listing of LCR coho and PS steelhead, the focus of the analysis is determining the increment of costs that is attributable to critical habitat designation.

The social welfare impacts of critical habitat designation generally reflect "opportunity costs" associated with the commitment of resources required to accomplish species and habitat conservation. For example, if a set of activities that may take place on a parcel of land are limited as a result of the designation or the presence of the species, and thus the market value of that land is reduced, this reduction in value represents one measure of opportunity cost. Similarly, the costs incurred by a Federal action agency to consult with NOAA Fisheries under ESA section 7 represent opportunity costs related to LCR coho and PS steelhead conservation, as the time and effort associated with those consultations would have been spent on other endeavors absent the listing of the species or critical habitat designation.

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 future cash flows expressed in today's dollars. Translation of economic impacts of future costs to present value terms requires the following: a) projected future costs of critical habitat designation; and b) the specific years in which these impacts 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 2010 dollars according to the following standard formula:[a]

$$PV_c = \sum_{t}^{T} \frac{C_t}{(1+r)^{t-2009}}$$

C_t = cost of 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, however, all activities employ a forecast period of 20 years, 2011 through 2030. 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, 20 years)

[a] To derive the present value of future impacts, t is 2011 and T is 2030.

[b] The goal in selecting the appropriate discount rate is to choose the rate which individuals, and society, are willing to exchange consumption spending over time. OMB's own guidance on discounting currently recommends using a rate of seven percent, an estimate of the average real pre-tax rate of return generated by private sector investments. Since public use of capital relies on private capital markets, and since government use of investment funding may use funds that would otherwise be available for private borrowing, the market equilibrium interest rate can be used as a discounting rate to apply to public sector investments and/or discounting. This is the logic behind OMB's recommendation of a seven percent discount rate. OMB also recommends the use of an alternate discount rate for comparison, often three percent. Based on historical rates of return on relatively risk-free investments (such as U.S Treasury securities), adjusted for taxes and inflation, a consumption rate of interest measured at two to three percent is justified. Presenting discounted values with both a low and a high discount rate performs a degree of sensitivity analysis for the findings of a particular valuation.

Sources: 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; U.S. Environmental Protection Agency, Guidelines for Preparing Economic Analyses, September 2000.

At the guidance of the Office of Management and Budget (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. Economists generally characterize opportunity costs in terms of changes in producer and consumer surpluses (i.e., social welfare impacts) in affected markets.[24]

2.3.1 BASELINE FOR THE ECONOMIC ANALYSIS

The first step in the economic analysis is to identify the baseline level of protection afforded the LCR coho and PS steelhead and their habitat. This section provides a description of the methodology used to identify baseline conditions and incremental impacts stemming from the potential designation of critical habitat for the LCR coho and PS steelhead.

The baseline for this analysis is the existing state of regulation prior to the designation of critical habitat that provides protection to the species under the ESA and other Federal, State and local laws and guidelines. The baseline includes the protections of sections 7, 9, and 10 of the ESA, 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, including protections afforded LCR coho and PS steelhead from protections afforded other listed species, such as salmon and steelhead, green sturgeon, eulachon, and bull trout species.

- Section 7 of the ESA, absent critical habitat designation, requires Federal agencies to consult with NOAA Fisheries to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species. The portion of the administrative costs of consultations under the jeopardy standard, along with the impacts of project modifications resulting from consideration of this standard, are considered baseline impacts. Section 7 protections provided for the subject species, as well as protections provided to other listed species (e.g., other listed salmon species), are considered baseline impacts. Section 7 actions related to critical habitat for other listed species in proposed critical habitat areas may also provide baseline protections for the subject species (e.g., Lower Columbia River Chinook critical habitat protections under section 7).
- Section 9 defines the actions that are prohibited by the ESA. 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

[24] 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.

in any such conduct."[25] The economic impacts associated with this section manifest themselves in actions undertaken with respect to ESA sections 7 and 10.

- Under section 10(a)(1)(B) of the ESA, an entity (e.g., a landowner or local government) may develop a Habitat Conservation Plan (HCP) for a listed animal species in order to meet the conditions for issuance of an incidental take permit in connection with the development and management of a property.[26] The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that the effects of incidental take are adequately minimized and mitigated. 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.

The protection of listed species and habitat is not limited to the ESA. 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 not quantified as impacts of critical habitat designation. As noted above, where uncertainty exists as to whether particular costs would have already occurred under the baseline, this analysis conservatively includes those costs.

After the critical habitat rule goes into effect, activities affecting LCR coho and PS steelhead may require modification to avoid destruction or adverse modification of critical habitat. This analysis aims to understand the economic impacts of avoiding adverse impacts to LCR coho and PS steelhead critical habitat over and above other baseline protections that may already be in place. Because of the close relationship in terms of management requirements under the ESA between LCR coho and PS steelhead and other listed threatened and endangered salmon and steelhead species, protections for these species are anticipated to provide the strongest baseline protections to LCR coho and PS steelhead within areas assessed for critical habitat designation. In addition, a number of regulations, laws, and initiatives have been created specifically to address human-induced impacts on other anadromous fish species. These are summarized in Appendix B.

Other Salmon and Steelhead Species

Riverine habitat for LCR coho and PS steelhead largely overlaps that of other listed West Coast salmon and steelhead species' habitat and also largely overlaps designated critical habitat areas for other West Coast salmon and steelhead species, as shown in Exhibit 2-1 and Exhibit 2-2. While the habitat area affected by the proposed rule supports numerous other listed species (e.g., eulachon, bull trout), LCR coho and PS steelhead are most

[25] 16 U.S.C. 1532.

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

closely related to other salmon and steelhead species in terms of threats and habitat management requirements.

Because of the high visibility and regional importance of salmon and steelhead species, numerous protections have already been undertaken on behalf of these species. Within the watersheds assessed for critical habitat for PS steelhead and LCR coho, a total of 1,716 consultation actions were recorded in NOAA's Public Consultation Tracking System (PCTS) database between 2001 and 2010, or approximately 172 actions annually during that time period. As presented in Exhibit 2-3, this consultation history includes consultations on 31 listed species and DPSs, most of which are salmon and steelhead DPSs. These actions were authorized, funded, or carried out by nearly 30 Federal agencies in addition to NOAA Fisheries.

EXHIBIT 2-1. OVERLAP OF CRITICAL HABITAT STUDY AREA FOR LCR COHO WITH OTHER SALMON AND PS STEELHEAD CRITICAL HABITAT

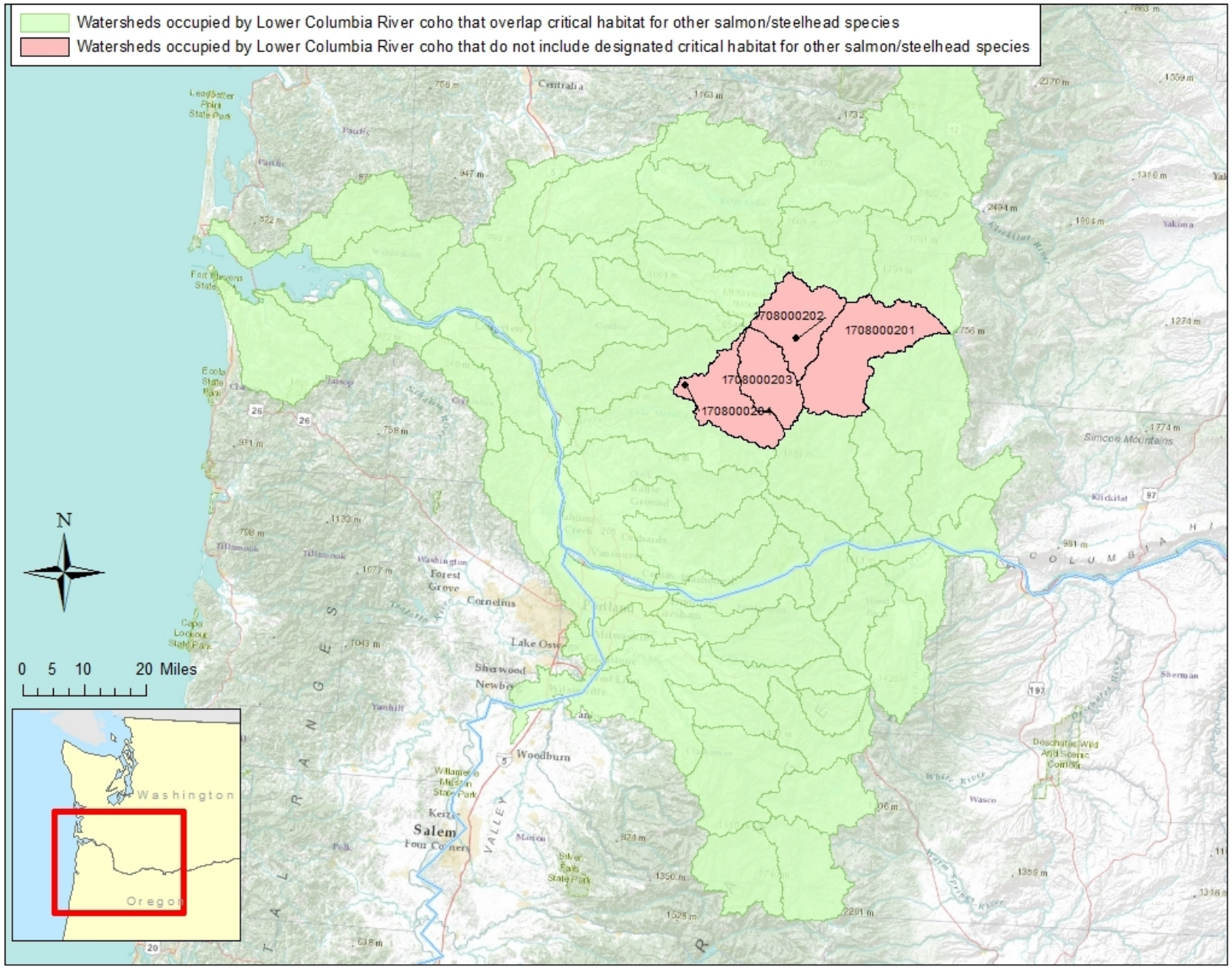

Watersheds occupied by Lower Columbia River coho that overlap critical habitat for other salmon/steelhead species
Watersheds occupied by Lower Columbia River coho that do not include designated critical habitat for other salmon/steelhead species
1708000202
1708000201
1708000203
1708000204
N
0 5 10 20 Miles
Washington
Oregon
Centralia
Portland
Salem
Woodburn
Forest Grove
Cornelius
Lake Oswego
Sherwood
Newberg
Simcoe Mountains
Klickitat
Yakima
Sherman
Wasco
Tillamook
Pacific
Polk
Marion
Yamhill
Washington
Multnomah
Clackamas
Columbia
Deschutes Wild And Scenic Corridor
Silver Falls State Park
Four Corners
Keizer
Willamette Mission State Park
Fort Stevens State
Ecola State Park
Cape Lookout State Park
Leadbetter Point State Park
Tillamook
Columbia River
White River
Hood River
Klickitat River
Yakima River
Willamette River
Tualatin River
Clackamas River
Sandy River
Cowlitz River
Lewis River
Kalama River
Washington Forest Grove
Cornelius
Lake Oswego
Sherwood
Newberg
Woodburn
Salem
Four Corners
Keizer
Willamette Mission State Park
Silver Falls State Park
Deschutes Wild And Scenic Corridor
Simcoe Mountains
Klickitat
Sherman
Wasco
Tillamook
Pacific
Polk
Marion
Yamhill
Washington
Multnomah
Clackamas
Columbia
Columbia River
White River
Hood River
Klickitat River
Yakima River
Willamette River
Tualatin River
Clackamas River
Sandy River
Cowlitz River
Lewis River
Kalama River
Fort Stevens State
Ecola State Park
Cape Lookout State Park
Leadbetter Point State Park
Tillamook
Pacific
Polk
Marion
Yamhill
Washington
Multnomah
Clackamas
Columbia

EXHIBIT 2-2. OVERLAP OF CRITICAL HABITAT STUDY AREA FOR PUGET SOUND STEELHEAD WITH OTHER SALMON AND STEELHEAD CRITICAL HABITAT

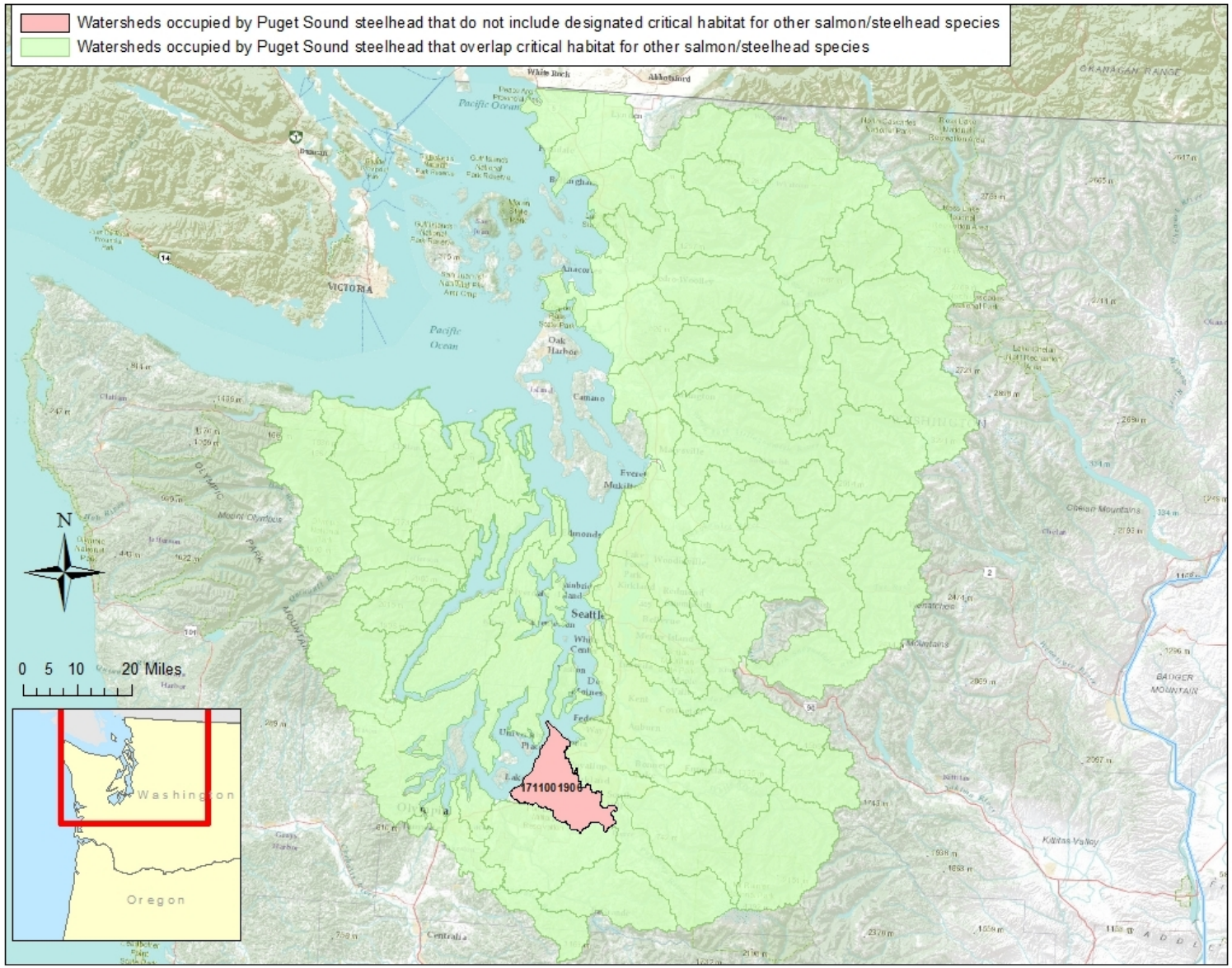


EXHIBIT 2-3. OTHER SPECIES INCLUDED IN SECTION 7 ACTIONS IN AREAS ASSESSED FOR DESIGNATION AS LCR COHO AND PS STEELHEAD CRITICAL HABITAT (2001-2010)[27]

SPECIES (ESU)	STATUS	CRITICAL HABITAT STATUS
Eulachon, Pacific (Southern DPS)	Threatened	Designated
Salmon, Chinook (Lower Columbia River)	Threatened	Designated
Salmon, Chinook (Upper Willamette River)	Threatened	Designated
Salmon, Chinook (Snake River fall run)	Threatened	Designated
Salmon, Chinook (Snake River spring/summer run)	Threatened	Designated
Salmon, Chinook (Upper Columbia River spring-run)	Endangered	Designated
Salmon, Chinook (Puget Sound)	Threatened	Designated
Salmon, chum (Columbia River)	Threatened	Designated
Salmon, chum (Hood Canal summer-run)	Threatened	Designated
Salmon, sockeye (Snake River)	Endangered	Designated
Steelhead (Lower Columbia River)	Threatened	Designated
Steelhead (Upper Willamette River)	Threatened	Designated
Steelhead (Upper Columbia River)	Endangered	Designated
Steelhead (Middle Columbia River)	Threatened	Designated
Steelhead (Snake River Basin)	Threatened	Designated
Sturgeon, green (Southern DPS)	Threatened	Designated
Sea lion, Steller	Threatened	Designated
Whale, killer (Southern Resident DPS)	Endangered	Designated

Other Fish Species

The analysis also considered baseline protections resulting from the presence of protected fish species other than West Coast salmon and steelhead, including the Southern DPS of eulachon, green sturgeon, and bull trout. Critical habitat for eulachon has been designated in riverine and estuarine areas, in Washington, Oregon, and California. Critical habitat for green sturgeon has been designated in riverine, estuarine, and coastal areas in Alaska, Washington, Oregon, and California, while bull trout critical habitat has been designated in riverine, lake, and coastal areas in Washington, Oregon, Idaho, Montana, and Nevada.

While conservation recommendations for these fish species may not always benefit LCR coho and PS steelhead, conservation recommendations for some activities may provide a measure of protection for LCR coho and PS steelhead habitat. The two DPSs have considerable overlap with these other fish species and rely on similar physical and biological features. For example, water quality standards and restrictions on sediment loads—a key concern for eulachon freshwater spawning and incubation sites—would likely help protect LCR coho and PS steelhead spawning sites as well.

[27] Section 7 actions include all completed section 7 consultations categorized as formal, informal, programmatic, conference, implementation, and pre-consultation/technical assistance.

Marine Mammals

The analysis also considers baseline protections resulting from the presence of marine mammals such as killer whales and Steller sea lions. While conservation recommendations for marine mammals may not always benefit LCR coho and PS steelhead, conservation recommendations for some activities, particularly those that may affect prey or water quality, may provide a measure of protection for LCR coho and PS steelhead and their habitat. However, because the specific habitat requirements for marine mammals and LCR coho and PS steelhead are not closely related, no baseline protections for LCR coho and PS steelhead are assumed to exist in habitat areas associated with marine mammal protections. This approach likely underestimates baseline protections that may exist for LCR coho and PS steelhead in marine mammal habitat areas.

Overlap with Critical Habitat for Other Listed Species

As shown in Exhibit 2-4, the physical or biological features essential for conservation of LCR coho and PS steelhead critical habitat are the same as salmon and steelhead DPSs with existing critical habitat designations (70 FR 52630, September 2, 2005) as well as eulachon and bull trout. Exhibit 2-5 summarizes the types of conservation measures that have been recommended for salmon, steelhead, eulachon, and bull trout in areas assessed for designation as critical habitat for LCR coho and PS steelhead. In a review of past consultations, no additional modifications have been identified for LCR coho and PS steelhead.

EXHIBIT 2-4. COMPARISON OF PHYSICAL AND BIOLOGICAL FEATURES ESSENTIAL FOR CONSERVATION OF LCR COHO AND PS STEELHEAD, EULACHON, AND BULL TROUT

COHO SALMON/STEELHEAD[1]	EULACHON[2]	BULL TROUT[3]
FRESHWATER FOR SPAWNING AND REARING		
Water Quantity and Quality. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development. Also, freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility.	**Substrate**. Substrates for egg deposition and development are essential for spawning. Typical spawning substrate ranges from silt, sand or gravel to cobble and detritus. Significant uncertainties remain regarding the effect of substrate size and quality on eulachon spawning success.	**Substrate**. Substrates of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount (e.g., less than 12%) of fine substrate less than 0.85 mm (0.03 in) in diameter and minimal substrate embeddedness of these fines in larger substrates are characteristic of these conditions.
	Water Quality. Water quality is necessary for spawning, and viability of all life stages. Sublethal concentrations of contaminants affect the survival of aquatic species by increasing stress, predisposing organisms to disease, delaying development, and disrupting physiological processes, including reproduction.	**Water quality**. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.
	Flow. A flow regime (i.e., the magnitude, frequency, duration, seasonality, and rate-of-change of freshwater discharge over time) supporting spawning, and survival of all life stages. Sufficient flow may also be needed to flush silt and debris from spawning substrate surfaces to prevent suffocation of developing eggs.	**Flow**. Sufficient water quantity such that normal reproduction, growth and survival are not inhibited. A natural hydrograph, including peak, high, low, and base flows within historic or seasonal ranges or, if flows are controlled, they minimize departures from a natural hydrograph.
	Temperature. Suitable water temperatures would include stable water temperatures within spawning reaches (wide fluctuations could increase egg mortality or deformities in developing embryos). Given the range of temperatures that eulachon spawn in throughout their range, the contrast between ocean and river temperatures might be more critical than river temperatures.	**Temperature.** Water temperatures ranging from 2° to 15° Celsius (C) (36° to 59° Fahrenheit (F)), with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will vary depending on bull trout life history stage and form, geography, elevation, diurnal and seasonal variation, shade, such as that provided by riparian habitat, and local groundwater influence.

COHO SALMON/STEELHEAD[1]	EULACHON[2]	BULL TROUT[3]
Food. Forage supporting juvenile development.		**Food**. An abundant food base including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish. **Lack of Nonnative Species**. Few or no nonnative predatory (e.g., lake trout, walleye, northern pike, small mouth bass), inbreeding (brook trout), or competitive (e.g., brown trout) species present.
Cover. Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks		**Complex habitat.** Complex river, stream, lake, and shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks and substrates to provide a variety of depths, gradients, velocities, and structure.
Freshwater and Estuarine Migration Corridors		
Migratory Corridor. Free of obstruction with natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival. Also, aquatic invertebrates and fishes, supporting growth and maturation.	**Migratory Corridor.** Safe and unobstructed for adults to pass from estuarine to riverine habitats in order to spawn, and for larval eulachon to migrate downstream from spawning habitats within freshwater rivers to rearing habitats within the estuaries.	**Passage.** Minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent or seasonal barriers.
Water Quantity and Quality. Water quality, quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh and saltwater.	**Water Quality**. Water quality is necessary for survival and migration of spawning adult and larval eulachon. Adult eulachon can take up and store pollutants from their spawning rivers, despite the fact that they do not feed in fresh water and remain there only a few weeks. Eulachon avoid polluted waters when possible.	**Water Quantity**. Sufficient water quantity such that normal reproduction, growth and survival are not inhibited.
	Flow. A flow regime (i.e., the magnitude, frequency, duration, seasonality, and rate-of-change of freshwater discharge over time) that supports spawning migration of adults and outmigration of larval eulachon from spawning sites.	**Flow Regime.** A natural hydrograph, including peak, high, low, and base flows within historic or seasonal ranges or, if flows are controlled, they minimize departures from a natural hydrograph.
	Temperature. Water temperature may influence run timing. The contrast between ocean and river temperatures might be more critical than river temperatures.	**Temperature**. Water temperatures ranging from 36° to 59° Fahrenheit, with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will vary depending on bull trout life history stage and form, geography, elevation, diurnal and seasonal variation, shade, such as that

COHO SALMON/STEELHEAD[1]	EULACHON[2]	BULL TROUT[3]
		provided by riparian habitat, and local groundwater influence.
Food. Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.	**Food.** Larvae need abundant prey items, especially copepod larvae.	
Nearshore and Offshore Marine Foraging Sites		
Food. Forage including aquatic invertebrates and fishes, supporting growth and maturation	**Food.** Prey items, in a concentration that supports foraging for juveniles and adults, are needed in the marine environment. Juveniles eat phytoplankton, copepod eggs, copepods and other small zooplanktons, and adults eat euphausiids and copepods.	
Water Quality. Nearshore marine areas with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.	**Water Quality.** The water quality requirements for eulachon in marine habitats is largely unknown but they would likely include adequate dissolved oxygen levels and be free of contaminants	
Cover. Free of obstruction with natural cover such as submerged and overhanging large wood, aquatic vegetation		**Complex habitat**. Complex marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks and substrates to provide a variety of depths, gradients, velocities, and structure.

[1] 76 FR 1392. Advanced Notice of Proposed Rulemaking, Endangered and Threatened Species: Designation of Critical Habitat for Threatened Lower Columbia River Coho Salmon and Puget Sound Steelhead, National Marine Fisheries Service, Northwest Region Protected Resources Division, January 10, 2011.
[2] Critical Habitat for the Southern Distinct Population Segment of Eulachon, Final Biological Report, National Marine Fisheries Service, Northwest Region Protected Resources Division, September 2011.
[3] 70 FR 52630; Appendix F, Final Economic Analysis of Critical Habitat Designation for the Bull Trout, prepared for the U.S. Fish and Wildlife Service, September 2010.

EXHIBIT 2-5. EXAMPLE CONSERVATION EFFORTS FOR WEST COAST SALMON AND STEELHEAD SPECIES

ACTIVITY	EXAMPLE MITIGATION MEASURE
Instream work and Transportation	▪ Dredging and dredged material disposal taking place only during the in-water work window from November 1 through February 28. ▪ In-water disposal at a minimum of minus 32 feet mean lower low water (MLLW) to minimize turbidity and impacts to salmonids. ▪ Dredging to be completed in compliance with applicable state water quality standards. ▪ Construction equipment to be serviced, stored, and fueled at least 100 feet away from the shoreline, as practicable. ▪ Water quality monitoring will be conducted during active dredging and in-water placement activities. ▪ Dredging impacts will be confined to the minimum area necessary to complete the project.
Federal Lands Management, including grazing and forest management	▪ Prevent loss or damage to land uses near streams, and support riparian and aquatic habitat functions. ▪ Limit landscape-level discharges caused by the cumulative effects of active cropping/rangeland use and episodic events. ▪ Riparian conservation buffers placed next to wetlands and waterways to provide aquatic habitat features. ▪ Reduce sheet, rill and gully erosion at field edges by trapping sediment. ▪ Reduce polluted surface runoff by trapping pollutants. ▪ Implementing project design features that keep chemicals out of water. ▪ Reporting annual weed control proposals to NOAA Fisheries by April 1, prior to the start of each spray season. ▪ Implementing additional minimization/avoidance measures related to access management. ▪ Visually observe a minimum of five ford crossings before, during, and after a stream crossing annually for 5 years.
Mining	▪ Implement a pollution and erosion control plan to prevent pollution caused by operations, including practices to prevent erosion and sedimentation associated with related shoreline operations. ▪ Develop spill containment and control plan. ▪ Operations will be stopped temporarily if injured, sick, or dead listed species are in the project area.
Development, including NPDES permitted activities	▪ Minimize incidental take from the proposed activity. ▪ Prevent entry of pollutants into streams, and ensure that the temperature of receiving waters does not exceed site-specific minimum temperature standards. ▪ Potential to set aside land for habitat creation or conservation.
Utilities	▪ Directional drilling, rather than open cut construction. ▪ Use sediment barriers to prevent the flow of spoil or heavily silt-laden water into any waterbody. ▪ Maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.
Water Supply and Hydropower	▪ Ensure that all in-stream projects involve a professional fisheries biologist.

ACTIVITY	EXAMPLE MITIGATION MEASURE
	▪ Follow guidelines for timing of in-water work, where relevant, except where the potential for greater damage to fish, water quality and fish habitat exists. ▪ Minimize amount of disturbance to fish by training personnel in survey methods that prevent or minimize disturbance of fish.
Source: NOAA Fisheries, Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery and Conservation Management Act Essential Fish Habitat Consultation on Resource Management Systems for Dry Cropland and Range and Pastureland in Gilliam, Sherman and Wasco Counties, Oregon, #2002/00111, April 22, 2004. NOAA Fisheries, Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Pacific Rock Products Instream Sand and Gravel Mining, #2006/01053, August 25, 2006. NOAA Fisheries, Endangered Species Act Section 7 Formal Programmatic Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Fish Habitat Restoration Activities in Oregon and Washington, CY2007-CY2012, # 2006/0653, April 28, 2007. NOAA Fisheries, Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Boise National Forest South Fork Salmon River Noxious and Invasive Weed Management Program, #2009/05069, November 12, 2009. NOAA Fisheries, Endangered Species Act Section 7 Formal Programmatic Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Salmon-Challis National Forest Travel Plan, #2009/02644, August 12, 2009. NOAA Fisheries, Endangered Species Act Section 7 Formal Programmatic Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on Bureau of Land Management, Forest Service, and BIA/Coquille Indian Tribe Actions, # 2002/00879, October 18, 2002. Federal Energy Regulatory Commission, Wetland And Waterbody Construction And Mitigation Procedures, January 17, 2003.	

2.3.2 TYPES OF ECONOMIC IMPACTS OF CRITICAL HABITAT DESIGNATION

The purpose of the analysis is to determine the impacts on land uses and activities from the potential designation of critical habitat that are above and beyond those impacts due to existing or planned conservation efforts being undertaken due to other Federal, State, and local regulations or guidelines.

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 ensuring that the actions are not 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 project modifications to protect critical habitat are the direct result of the designation of critical habitat. These costs are not in the baseline, and are considered incremental impacts of the rulemaking.

Incremental impacts may include the direct costs associated with additional effort for future consultations, reinitiated consultations, new consultations occurring specifically because of the designation, and additional project modifications that would not have been required to avoid jeopardizing the continued existence of the species or adversely modifying or destroying designated critical habitat. Additionally, incremental impacts may include indirect impacts resulting from reaction to the potential designation of critical habitat (e.g., developing habitat conservation plans (HCPs) in an effort to avoid designation of critical habitat), triggering of additional requirements under State or local

laws intended to protect sensitive habitat, and uncertainty and perceptional effects on markets. The nature of these impacts is described in greater detail below.

Direct Impacts

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 project modifications requested by NOAA Fisheries through section 7 consultation to avoid or minimize potential destruction or adverse modification of critical habitat.

Administrative Section 7 Consultation Costs

Parties involved in section 7 consultations for LCR coho and PS steelhead include NOAA Fisheries, a Federal action agency (the Federal action, such as a permit or other authorization, provides the "Federal nexus" requiring consultation), and in some cases, a private entity involved in the project or land use activity. The Federal action agency serves as the liaison with NOAA Fisheries. While consultations are required for activities that involve a Federal nexus and may jeopardize the continued existence of the species regardless of whether critical habitat is designated, the designation may increase the effort for consultations where the project or activity in question may adversely modify critical habitat. Administrative efforts for consultation may therefore result in both baseline and incremental impacts.

In general, three different scenarios associated with the designation of critical habitat may trigger incremental administrative consultation costs:

- **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, only the additional administrative effort required to consider critical habitat is considered an incremental impact of the designation.
- **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 and project modification costs, are considered incremental impacts of the designation.
- **Incremental consultation resulting entirely from critical habitat designation -** Critical habitat designation may trigger additional consultations that may not occur absent the designation (e.g., for an activity for which adverse modification may be an issue, while jeopardy is not, or consultations resulting from the new information about the potential presence of the species provided by the designation). Such consultations may, for example, be triggered in critical habitat areas that are not occupied by the species. All

associated administrative and project modification costs of incremental consultations are considered incremental impacts of the designation.

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. Section 3.6 discusses estimated consultation costs in more detail.

As discussed above, NOAA Fisheries provided a detailed consultation history of previous section 7 actions since 2001 in areas assessed for LCR coho and PS steelhead critical habitat. Based on this consultation history for other anadromous fish species, this analysis forecasts a future rate of section 7 consultation for the LCR coho and PS steelhead, assuming that the average rate of consultation per year is unlikely to change due to critical habitat designation for the LCR coho and PS steelhead.

Section 7 Project Modification Impacts

Section 7 consultation considering critical habitat may also result in additional project modification recommendations specifically addressing potential destruction or adverse modification of critical habitat. For consultations that consider jeopardy and adverse modification, and for re-initiations of past consultations to consider critical habitat, the economic impacts of project modifications undertaken to avoid or minimize 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 project modifications are assumed to be incremental impacts of the designation.

Indirect Impacts

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 of the ESA. Indirect impacts are those unintended changes in economic behavior that may occur outside of the ESA, through other Federal, State, local, or private actions that are caused by the designation of critical habitat. This section identifies common types of indirect impacts that may be associated with areas designated as critical habitat. If the conservation efforts occur only because of critical habitat designation for LCR coho or PS steelhead, their costs are treated as incremental; if the efforts would occur regardless of critical habitat designation, their costs are appropriately considered baseline impacts.

Habitat Conservation Plans

Under section 10 of the ESA, landowners seeking an incidental take permit may develop an HCP to avoid liability for their actions that may incidentally “take” listed species. The purpose of the habitat conservation planning process is to ensure that the effects of incidental take are adequately minimized and mitigated. Thus, HCPs are developed to ensure compliance with section 9 of the ESA and to meet the requirements of section 10 of the ESA.

Application for an incidental take permit and completion of an HCP is not required or necessarily recommended by NOAA Fisheries as a result of a critical habitat designation.

In certain situations, however, 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 actions is considered an incremental effect of designation.

Other State and Local Laws

Under certain circumstances, critical habitat designation may provide new information to a State or local government 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.

Additional Indirect Impacts

In addition to the indirect effects noted above, project proponents, land managers and landowners may face additional indirect impacts, including the following:

- **Time Delays -** Both public and private entities may experience incremental 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** - NOAA Fisheries 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 NOAA Fisheries under section 7 may face uncertainty concerning whether project modifications will be recommended by NOAA Fisheries 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 regulatory uncertainty stemming from the designation may affect a project or economic behavior, associated impacts are considered indirect, incremental impacts of the designation.

  These potential impacts are not explicitly addressed in this analysis, but were considered during the development of cost estimates.

2.4 APPROACH TO ANALYSIS OF LCR COHO AND PS STEELHEAD CRITICAL HABITAT

To quantify the economic impacts of modifications to land and water uses likely to result from critical habitat designation, the analysis employs the following three steps:

1. Define the geographic study area for the analysis, and identify the units, in this case, fifth-field hydrologic units (HUCs or watersheds), within the study area to be analyzed for purposes of this designation. The units (HUCs) being analyzed are larger than the area being considered for designation as critical habitat, which is comprised solely of stream reaches in these HUCs. HUCs are used to identify potential economic impacts because activities occurring in a watershed have the potential to affect the stream reaches located therein.[28] The proposed rule to designate critical habitat analyzes how each stream area assessed for critical habitat in these HUCs meets the definition of critical habitat set forth in Section 3 of the ESA.
2. Based on the potentially affected economic activities identified by NOAA Fisheries, determine how conservation efforts, including both project modification and administrative costs, may increase due to the designation of critical habitat for the LCR coho and PS steelhead.
3. Estimate the economic impacts associated with this change in management.

These steps are described in greater detail below.

2.4.1 DEFINE GEOGRAPHIC STUDY AREA

As shown in Exhibits 1-1 and 1-2, the critical habitat study area spans an area from Oregon to the Olympic Peninsula in Washington. IEc applies a watershed-based approach to the stream reaches provided by NOAA Fisheries to determine the area of potential effects of LCR coho and PS steelhead critical habitat. As discussed in Section 1, to define the watershed areas potentially affected by LCR coho and PS steelhead critical habitat, this analysis uses a standard watershed unit, as mapped by the U.S. Geological Service and described by ten-digit, fifth-field hydrologic unit codes (referred to in this report as HUCs, or simply "watersheds") in Oregon and Washington. In total, the study area covers 122 HUCs.

2.4.2 IDENTIFY POTENTIALLY AFFECTED ECONOMIC ACTIVITIES AND DETERMINE HOW MANAGEMENT MAY CHANGE

Using the detailed consultation history for the watersheds assessed as LCR coho and PS steelhead critical habitat as shown in Exhibits 2-10 and 2-11, this analysis identifies economic activities that may be subject to section 7 consultation, forecasts a future rate of section 7 consultation for the LCR coho and PS steelhead, and estimates associated administrative costs and potential project modification costs, where relevant. Activities outside of the 122 HUCs, for example, an upstream dam, are assumed not to affect critical habitat. Below, Exhibits 2-6 through 2-9, show the number of consultations from 2001 to 2010 within the areas assessed as critical habitat for each type of consultation effort and for each activity.

[28] Economic impacts were generated for each HUC/watershed. In some cases these impacts were further parsed into tributary vs. mainstem corridor impacts (see "4(b)(2) Exclusions" in the Summary of Findings section).

EXHIBIT 2-6. LOWER COLUMBIA RIVER COHO SALMON: CONSULTATION ACTIONS IN AREAS ASSESSED FOR CRITICAL HABITAT DESIGNATION BY TYPE OF ACTION: 2001-2010

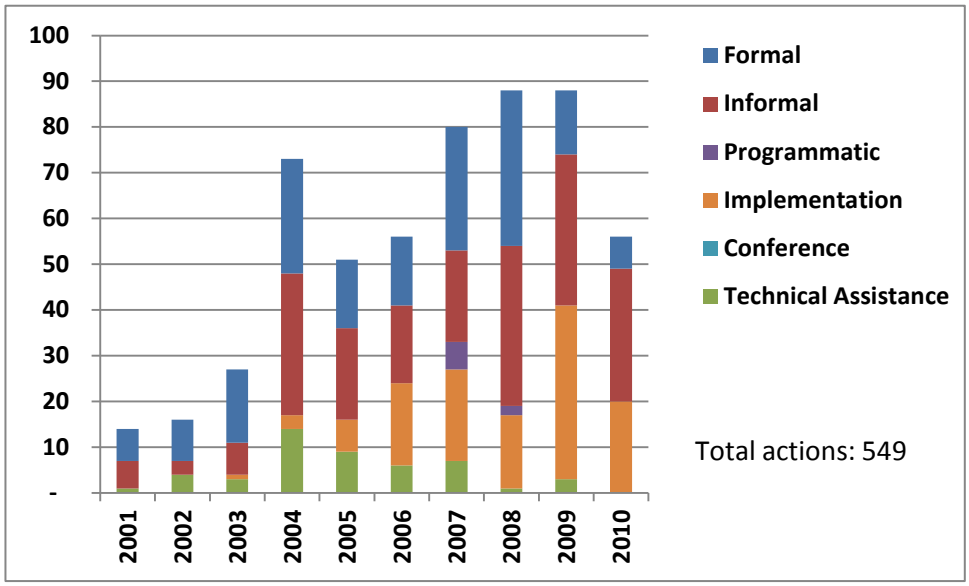


EXHIBIT 2-7. PUGET SOUND STEELHEAD: CONSULTATION ACTIONS IN AREAS ASSESSED FOR CRITICAL HABITAT DESIGNATION BY ACTIVITY: 2001-2010

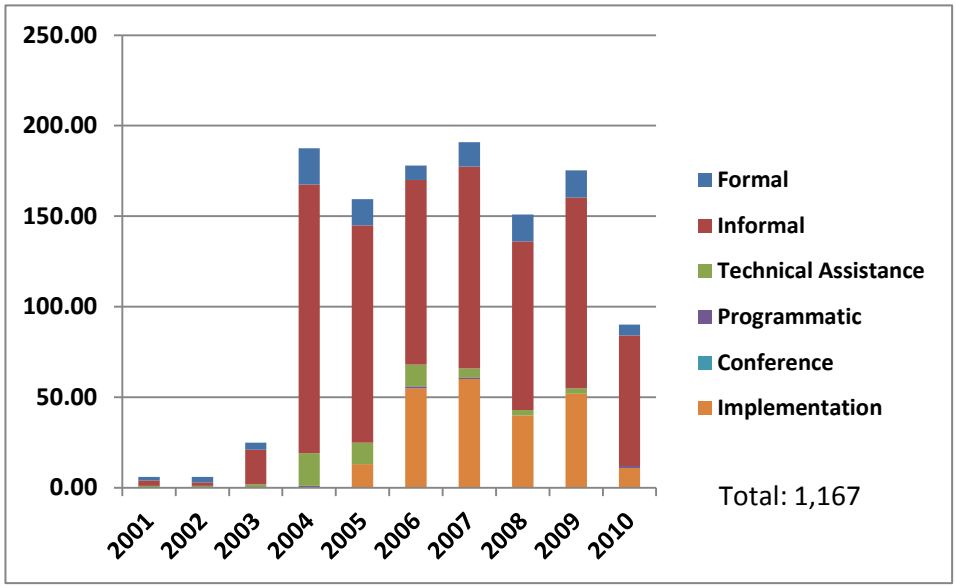


EXHIBIT 2-8. LOWER COLUMBIA RIVER COHO SALMON: TOTAL SECTION 7 ACTIONS BY ACTIVITY IN AREAS ASSESSED FOR CRITICAL HABITAT DESIGNATION BY TYPE OF ACTION: 2001-2010

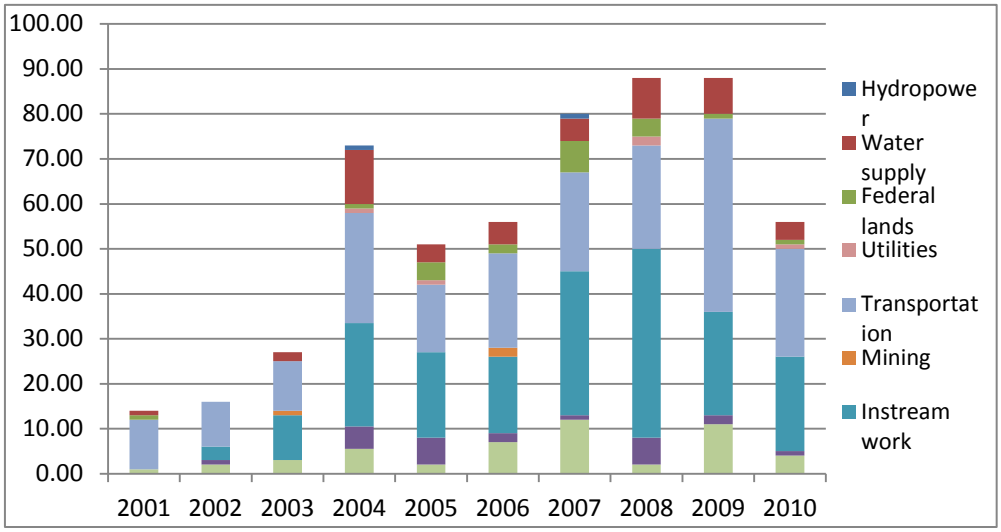
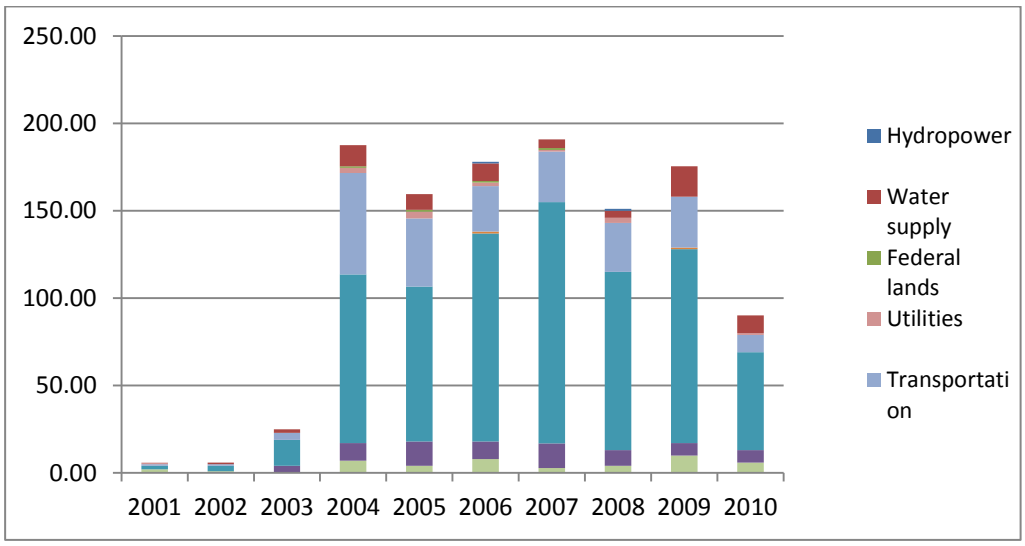


EXHIBIT 2-9. PUGET SOUND STEELHEAD: TOTAL SECTION 7 ACTIONS IN AREAS ASSESSED FOR CRITICAL HABITAT DESIGNATION BY ACTIVITY: 2001-2010



2.4.3 ESTIMATE ASSOCIATED ECONOMIC IMPACTS

A key challenge of this analysis is determining the extent to which the presence of the LCR coho and PS steelhead and their critical habitat affect the type or level of conservation efforts recommended by NOAA Fisheries for a project or activity. The uncertainty at this stage of the analysis falls into two main categories:

1. **Identifying conservation efforts associated with the listing protections for the LCR coho and PS steelhead apart from those conservation efforts undertaken specifically due to its critical habitat designation.** For conservation efforts undertaken at least in part for purposes of LCR coho and PS steelhead conservation, the role of critical habitat in their implementation is unclear. That is, it is uncertain whether project modifications specifically intended to benefit LCR coho and PS steelhead would be the same with or without the critical habitat designation.
2. **Determining the probability that the LCR coho and PS steelhead and their critical habitat are primary drivers of a conservation effort.** As described in Section 2.3.1, project-specific conservation efforts are frequently undertaken due to the joint presence of multiple species and habitats and may therefore be implemented regardless of the presence of any single species. The existing/overlapping listings and critical habitat designations for other species further complicates the identification of changes in behavior associated specifically with the LCR coho and PS steelhead critical habitat.

With regard to the first category of uncertainty, it is difficult to separate potential conservation efforts expected to result from critical habitat from those that would already be expected to occur for LCR coho and PS steelhead due to listing of the species. Based on discussions with NOAA Fisheries biologists and other stakeholders, this analysis focuses on conservation measures specifically identified to prevent adverse modification of LCR coho and PS steelhead habitat.

EXHIBIT 2-10. LOWER COLUMBIA RIVER COHO: TOTAL NUMBER OF SECTION 7 ACTIONS BY WATERSHED AND ACTIVITY (2001 THROUGH 2010)[29]

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1707010506	0.0	0.2	3.0	0.0	9.0	0.5	4.0	0.0	0.5	17.2
1707010507	0.0	0.9	1.0	0.0	0.0	0.5	0.0	0.0	0.5	2.9
1707010508	2.0	0.0	1.0	0.0	1.0	0.0	2.0	0.0	0.4	6.4
1707010509	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1
1707010510	0.0	0.0	2.0	0.0	1.0	0.0	0.0	0.0	3.1	6.1
1707010511	0.0	0.2	2.0	0.0	5.7	0.0	2.5	0.0	0.2	10.6
1707010512	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1
1707010513	2.0	0.2	2.0	0.0	0.7	0.0	0.5	0.0	0.2	5.6
1708000101	1.0	0.2	0.0	0.0	2.0	0.0	0.0	0.0	0.7	3.8
1708000102	1.0	0.2	0.0	0.0	4.5	0.0	0.0	0.0	0.3	6.0
1708000103	0.0	0.2	0.0	0.0	2.0	0.0	0.0	0.0	0.3	2.5
1708000104	0.0	0.2	2.0	0.0	2.5	0.0	5.0	0.0	0.7	10.3
1708000105	0.0	0.2	0.0	0.0	0.0	0.0	1.0	0.0	0.3	1.5
1708000106	0.0	0.0	4.0	0.0	1.5	1.0	1.0	0.0	1.3	8.8
1708000107	4.0	1.2	10.0	0.0	9.2	0.0	0.0	0.0	1.2	25.6
1708000108	1.0	0.9	1.0	0.0	2.0	0.0	1.0	0.0	1.7	7.6
1708000109	2.0	0.0	13.0	0.0	13.0	0.0	0.0	0.0	3.3	31.3
1708000201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
1708000202	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.1
1708000203	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
1708000204	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
1708000205	0.0	1.0	1.0	1.0	6.0	0.0	1.0	0.0	1.4	11.4
1708000206	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	4.0
1708000301	2.0	0.0	4.0	0.0	0.0	1.0	1.0	0.0	0.0	8.0

[29] Section 7 actions include all completed section 7 consultations categorized as formal, informal, programmatic, conference, implementation, and pre-consultation/technical assistance. Where a consultation covered multiple activities, it was divided across those activities. For example, a consultation covering both in-stream work and transportation would be counted as 0.5 in-stream and 0.5 transportation. In addition, programmatic consultations which were not specific to a geographic area were split evenly across all watersheds.

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1708000302	0.0	0.0	9.0	0.0	3.0	0.0	1.0	0.0	0.3	13.3
1708000303	0.0	0.2	2.0	0.0	3.0	0.0	0.0	0.0	0.3	5.5
1708000304	0.0	0.0	4.0	0.0	9.0	0.0	1.0	0.0	0.0	14.0
1708000305	0.0	0.0	10.0	0.0	1.5	0.0	2.0	0.0	0.0	13.5
1708000306	0.0	0.0	2.0	0.0	7.0	1.0	0.0	0.0	0.5	10.5
1708000401	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1708000402	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.6
1708000403	0.0	3.5	0.0	0.0	2.0	0.0	0.0	0.0	0.1	5.6
1708000404	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1
1708000405	0.0	1.0	2.0	0.0	0.0	0.0	0.0	0.0	2.1	5.1
1708000501	0.0	0.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	4.0
1708000502	0.0	0.0	1.0	0.0	2.0	0.0	0.0	0.0	0.0	3.0
1708000503	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1708000504	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1708000505	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1708000506	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
1708000507	1.0	0.0	1.0	0.0	3.0	0.0	1.0	0.0	2.0	8.0
1708000508	0.0	0.0	2.0	0.0	8.0	0.0	1.0	0.0	0.0	11.0
1708000601	0.0	0.0	10.0	0.0	9.0	0.0	0.0	0.0	1.0	20.0
1708000602	1.0	0.0	2.0	0.0	4.0	0.0	1.0	0.0	1.0	9.0
1708000603	1.0	0.0	5.0	0.0	5.0	0.0	3.0	0.0	4.0	18.0
1709000704	1.0	0.2	6.0	0.0	6.5	0.0	2.0	1.0	1.0	17.7
1709001101	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.1
1709001102	0.0	0.9	0.0	0.0	0.5	0.0	0.0	0.0	0.2	1.6
1709001103	0.0	0.9	0.0	0.0	0.5	0.0	0.0	0.0	0.2	1.6
1709001104	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
1709001105	0.0	0.2	0.0	0.0	0.0	0.0	2.0	0.0	0.1	2.3
1709001106	0.0	0.9	6.0	0.0	15.5	0.0	1.0	0.0	1.2	24.6

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1709001201	1.0	0.2	9.0	0.0	17.5	1.0	3.5	0.0	1.5	33.7
1709001202	1.0	1.2	8.0	0.0	6.0	0.0	3.0	0.0	4.0	23.2
1709001203	2.0	1.2	34.5	0.0	37.5	0.0	5.5	0.0	4.0	84.7
Lower Columbia Corridor (Sandy/Washougal to Ocean)	0.0	0.0	28.5	2.0	3.0	0.0	1.0	0.0	2.0	36.5
Total	**24.0**	**21.0**	**190.0**	**3.0**	**204.5**	**5.0**	**50.0**	**2.0**	**49.5**	**549.0**

EXHIBIT 2-11. PUGET SOUND STEELHEAD: TOTAL NUMBER OF SECTION 7 ACTIONS BY WATERSHED AND ACTIVITY (2001 THROUGH 2010)[30]

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000201	2.0	0.0	30.6	0.0	2.0	1.0	0.0	0.0	0.0	35.6
1711000202	4.0	0.0	37.1	0.0	5.0	0.0	5.0	0.0	3.3	54.4
1711000204	1.0	0.0	16.0	0.0	4.0	2.0	1.0	0.0	0.2	24.2
1711000401	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
1711000402	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	1.3
1711000403	0.0	1.0	7.0	0.0	3.3	0.0	0.0	0.0	0.0	11.3
1711000404	0.0	1.0	0.0	0.0	3.0	0.0	0.0	0.0	1.0	5.0
1711000405	0.0	0.0	13.0	0.0	5.3	1.0	0.0	0.0	0.0	19.3
1711000504	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
1711000505	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711000506	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711000507	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
1711000508	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
1711000601	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0
1711000602	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711000603	2.0	0.0	1.0	0.0	2.0	0.0	0.0	0.0	0.0	5.0
1711000604	0.0	0.0	1.0	0.0	12.0	0.0	0.0	0.0	1.0	14.0
1711000701	0.0	0.0	7.0	0.0	2.0	1.0	2.0	0.0	1.0	13.0
1711000702	1.0	0.0	17.0	0.0	1.0	0.0	4.0	1.0	1.0	25.0
1711000801	2.0	0.0	9.0	0.0	3.0	0.0	1.0	0.0	0.0	15.0
1711000802	1.0	0.0	3.0	0.0	10.0	0.0	0.5	0.0	0.3	14.8

[30] Section 7 actions include all completed section 7 consultations categorized as formal, informal, programmatic, conference, implementation, and pre-consultation/technical assistance. Where a consultation covered multiple activities, it was divided across those activities. For example, a consultation covering both in-stream work and transportation would be counted as 0.5 in-stream and 0.5 transportation. In addition, programmatic consultations which were not specific to a geographic area were split evenly across all watersheds.

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000803	0.0	0.0	5.0	0.0	4.0	0.0	2.0	0.0	2.0	13.0
1711000901	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711000902	0.0	0.0	5.0	1.0	1.0	0.0	1.0	0.0	0.0	8.0
1711000903	1.0	0.0	2.0	0.0	5.0	0.0	0.0	0.0	0.0	8.0
1711000904	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0
1711000905	0.0	0.0	4.0	0.0	6.5	0.0	0.0	1.0	0.0	11.5
1711001003	0.0	0.0	0.0	0.0	4.0	0.0	2.0	0.0	1.0	7.0
1711001004	1.0	0.0	3.0	0.0	6.5	2.0	1.0	0.0	0.0	13.5
1711001101	3.0	0.0	4.0	0.0	6.5	0.5	0.5	0.0	0.0	14.5
1711001102	9.0	0.0	37.1	0.0	18.5	6.5	10.0	0.0	5.0	86.1
1711001201	2.0	0.0	5.0	0.0	4.0	0.0	1.0	0.0	0.0	12.0
1711001202	1.5	0.0	49.7	0.0	6.0	0.0	0.0	0.0	0.0	57.2
1711001203	13.0	0.0	321.7	0.0	20.5	0.0	11.0	0.0	4.0	370.2
1711001204	12.5	0.0	9.7	0.0	18.0	0.0	4.0	0.0	2.0	46.2
1711001301	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0
1711001302	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0
1711001303	6.0	0.0	33.6	0.0	11.0	0.0	4.0	0.0	3.0	57.6
1711001401	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0
1711001402	1.0	0.0	1.0	0.0	2.5	0.0	0.0	0.0	0.0	4.5
1711001403	0.0	0.0	4.0	1.0	2.0	0.0	0.0	0.0	0.0	7.0
1711001404	1.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	1.0	4.0
1711001405	1.0	1.0	13.6	0.0	11.0	0.0	2.0	0.0	0.0	28.6
1711001502	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0
1711001503	0.0	0.0	4.0	0.0	3.5	0.0	0.0	0.0	3.5	11.0
1711001601	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711001602	1.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	3.0
1711001701	0.0	0.0	5.0	0.0	3.0	0.0	0.0	0.0	0.0	8.0

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711001802	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.1	7.1
1711001803	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711001804	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1711001805	0.0	0.0	1.0	0.0	3.0	0.0	0.0	0.0	1.1	5.1
1711001806	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	1.1	3.1
1711001807	0.0	0.0	4.0	0.0	1.0	0.0	0.0	0.0	1.1	6.1
1711001808	0.0	0.0	6.0	0.0	0.0	0.0	1.0	0.0	0.5	7.5
1711001900	0.0	0.0	9.0	0.0	1.0	0.0	1.0	0.0	0.0	11.0
1711001901	3.0	1.0	17.0	0.0	12.0	0.0	1.0	0.0	2.3	36.3
1711001902	0.0	0.0	1.0	0.0	3.0	0.0	1.0	0.0	1.0	6.0
1711001904	6.0	0.0	18.0	0.0	6.0	0.0	6.0	0.0	2.0	38.0
1711001906	0.0	0.0	2.0	0.0	0.5	0.0	0.0	0.0	0.5	3.0
1711001908	0.0	0.0	1.0	0.0	2.0	0.0	1.0	0.0	1.8	5.8
1711002001	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3
1711002002	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
1711002003	0.0	0.0	3.6	0.0	0.0	0.0	2.0	0.0	0.3	5.9
1711002004	0.0	0.0	2.6	0.0	0.0	0.0	1.0	0.0	2.3	5.9
1711002007	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.1	2.1
Total	**75.0**	**4.0**	**731.0**	**2.0**	**225.0**	**14.0**	**69.0**	**2.0**	**44.8**	**1,166.8**

Regarding the second category of uncertainty, a number of LCR coho and PS steelhead habitat areas overlap other anadromous fish species' habitat, particularly listed eulachon and other salmon and steelhead DPSs. Based on the existing history of formal consultations in watersheds assessed as LCR coho and PS steelhead critical habitat, it appears that conservation efforts that benefit LCR coho and PS steelhead are most frequently associated with the joint presence of salmonid species. A high level of baseline protection already exists in areas occupied by PS steelhead and LCR coho, related both to protections afforded these species under the ESA, as well as related to protections afforded other listed species, especially other salmonid species. This analysis assumes that, for most projects in salmonid habitat, the majority of conservation efforts benefitting the LCR coho and PS steelhead would be undertaken regardless of the presence of the LCR coho and PS steelhead or their critical habitat (e.g., efforts due to listing the species under the ESA). As such, the presence of salmonid species is considered a primary driver of the implementation of a conservation effort where prior salmon and steelhead listings have been well established. In these cases, considering LCR coho and PS steelhead in consultations may require little additional effort, and subsequent economic impact, over and above that already expected to occur due to the presence of listed salmonid species.

In general, this analysis examines conservation measures recommended for LCR coho and PS steelhead critical habitat over and above those recommended for presence of LCR coho and PS steelhead and other anadromous fish species and their critical habitat. These types of conservation measures may be related to protection of LCR coho and PS steelhead and their habitat during spawning, for example. By excluding impacts for which LCR coho and PS steelhead critical habitat is not a reason for implementing a conservation effort this analysis focuses the quantification of impacts associated specifically with conservation of LCR coho and PS steelhead critical habitat.

In some cases, LCR coho and PS steelhead critical habitat may be a key reason for implementing a conservation effort. This may be true, for example, where few other sensitive species are present. The analysis assumes that when LCR coho and PS steelhead and eulachon and other listed salmon or steelhead species are absent, LCR coho and PS steelhead are the key drivers of conservation measures. As noted above, the probability that any given conservation effort is being driven by LCR coho and PS steelhead conservation as opposed to other species is subject to some uncertainty.

As discussed in the Executive Summary and Section 3.4, all HUCs assessed for critical habitat under this rule package, with the exception of the Elwha River watershed, contain significant overlap with currently designated critical habitat for other salmonid species. Therefore, incremental project modifications are not expected to occur in any HUC in the assessed area outside of the Elwha River HUC.

2.4.4 ANALYTIC TIME FRAME

The analysis estimates impacts based on activities that are reasonably foreseeable, including activities that are currently authorized, permitted, or funded, or for which

proposed plans are currently available to the public. This analysis estimates the average annual number of consultations anticipated over the next 20 years.

2.4.5 TREATMENT OF UNCERTAINTIES

Uncertainties exist with regard to potential economic impacts of critical habitat designation for the LCR coho and PS steelhead. In particular, the rate and location of future economic activities in critical habitat areas is not known with certainty throughout the proposed area. In addition, the number and type of future consultations on these future economic activities is uncertain. The analysis uses the past rate of consultation by activity as a forecasting tool that considers both the level of economic activity in a watershed as well as the likelihood of future consultation. Because of the large amount of overlap with existing salmon and steelhead critical habitat designations, the recent consultation history represents a good proxy for the types of consultations, frequency of consultation, and activities likely to be affected by consultation efforts for these species in the foreseeable future.

SECTION 3 | INCREMENTAL IMPACTS

3.1 INTRODUCTION

As discussed in Section 2, this analysis examines the potential impacts of restricting or modifying specific land and water uses or activities to avoid adverse modification or destruction of critical habitat for LCR coho and PS steelhead. This section presents estimates of the incremental economic impacts of designating areas assessed for critical habitat for LCR coho and PS steelhead over and above existing baseline protections related to existing ESA regulations in place for the LCR coho, PS steelhead, and other species. As discussed in greater detail in Section 2 and Appendix B, protections under the ESA for other salmonid species, as well as eulachon, green sturgeon, and bull trout are expected to offer a high level of baseline protection for the LCR coho and PS steelhead in areas assessed for critical habitat.

3.2 SUMMARY OF FINDINGS

Additional administrative costs related to the consideration of LCR coho and PS steelhead critical habitat in future section 7 consultations are expected in areas assessed as critical habitat. However, incremental project modification efforts for LCR coho and PS steelhead critical habitat are considered to be unlikely for most areas because most areas assessed for critical habitat for LCR coho and PS steelhead are occupied by the species (i.e., already have listing-related considerations) and overlap critical habitat for numerous other listed salmonid species that share the same essential physical and biological features.[31] The Elwha River HUC is the only watershed assessed for critical habitat that contains stream reaches unoccupied at the time of listing (above the site of Elwha Dam) that are considered essential for the conservation of PS steelhead. Therefore, we anticipate incremental impacts related to project modifications in this HUC, as described in Section 3.4.

In total, incremental costs of critical habitat are estimated to be $358,000 for LCR coho and $461,000 for PS steelhead, annualized at a discount rate of seven percent (see Exhibit 3-1 and Exhibit 3-2). The highest estimated costs anticipated to be associated with the administrative burden of section 7 consultations concern water supply, in-stream work, development, federal lands management, transportation, utilities, mining, and hydropower. The Lake Washington HUC has the largest estimated impacts, associated with consultations on in-stream work, transportation activities, and water supply activities.

[31] NMFS. 2012. Critical Habitat for Lower Columbia River Coho Salmon and Puget Sound Steelhead. Draft Biological Report. October 2012.

EXHIBIT 3-1. SUMMARY OF ANNUAL INCREMENTAL COSTS, BY HUC: LOWER COLUMBIA RIVER COHO SALMON

HUC	NAME	PRESENT VALUE (SEVEN PERCENT)	PRESENT VALUE (THREE PERCENT)	ANNUALIZED (SEVEN PERCENT)	ANNUALIZED (THREE PERCENT)
1707010506	East Fork Hood River	$152,000	$206,000	$13,500	$13,500
1707010507	West Fork Hood River	$18,700	$25,300	$1,650	$1,650
1707010508	Hood River	$44,100	$59,600	$3,890	$3,890
1707010509	White Salmon River	$4,440	$6,000	$392	$392
1707010510	Little White Salmon River	$30,100	$40,700	$2,660	$2,660
1707010511	Wind River	$120,000	$163,000	$10,600	$10,600
1707010512	Middle Columbia/Grays Creek	$3,200	$4,330	$282	$282
1707010513	Middle Columbia/Eagle Creek	$51,400	$69,500	$4,540	$4,540
1708000101	Salmon River	$19,300	$26,100	$1,700	$1,700
1708000102	Zigzag River	$59,900	$81,000	$5,280	$5,280
1708000103	Upper Sandy River	$27,400	$37,000	$2,420	$2,420
1708000104	Middle Sandy River	$100,000	$135,000	$8,820	$8,820
1708000105	Bull Run River	$23,800	$32,200	$2,100	$2,100
1708000106	Washougal River	$39,400	$53,300	$3,480	$3,480
1708000107	Columbia Gorge Tributaries	$152,000	$205,000	$13,400	$13,400
1708000108	Lower Sandy River	$67,700	$91,600	$5,980	$5,980
1708000109	Salmon Creek	$191,000	$259,000	$16,900	$16,900
1708000201	Upper Lewis River	$1,270	$1,720	$112	$112
1708000202	Muddy River	$6,010	$8,120	$530	$530
1708000203	Swift Reservoir	$4,740	$6,410	$418	$418
1708000204	Yale Reservoir	$1,830	$2,470	$161	$161
1708000205	East Fork Lewis River	$135,000	$183,000	$11,900	$11,900
1708000206	Lower Lewis River	$21,900	$29,700	$1,940	$1,940
1708000301	Kalama River	$25,600	$34,600	$2,260	$2,260
1708000302	Beaver Creek/Columbia River	$68,700	$92,800	$6,060	$6,060
1708000303	Clatskanie River	$45,400	$61,400	$4,010	$4,010
1708000304	Germany/Abernathy	$101,000	$137,000	$8,940	$8,940

HUC	NAME	PRESENT VALUE (SEVEN PERCENT)	PRESENT VALUE (THREE PERCENT)	ANNUALIZED (SEVEN PERCENT)	ANNUALIZED (THREE PERCENT)
1708000305	Skamokawa/Elochoman	$70,200	$94,900	$6,190	$6,190
1708000306	Plympton Creek	$93,300	$126,000	$8,230	$8,230
1708000401	Headwaters Cowlitz River	$254	$343	$22	$22
1708000402	Upper Cowlitz River	$3,460	$4,670	$305	$305
1708000403	Cowlitz Valley Frontal	$26,900	$36,400	$2,370	$2,370
1708000404	Upper Cispus River	$2,600	$3,510	$229	$229
1708000405	Lower Cispus River	$19,700	$26,600	$1,740	$1,740
1708000501	Tilton River	$50,800	$68,700	$4,480	$4,480
1708000502	Riffe Reservoir	$20,600	$27,800	$1,820	$1,820
1708000503	Jackson Prairie	$0	$0	$0	$0
1708000504	North Fork Toutle River	$254	$343	$22	$22
1708000505	Green River	$254	$343	$22	$22
1708000506	South Fork Toutle River	$4,060	$5,490	$359	$359
1708000507	East Willapa	$58,300	$78,700	$5,140	$5,140
1708000508	Coweeman	$97,600	$132,000	$8,610	$8,610
1708000601	Youngs River	$123,000	$166,000	$10,800	$10,800
1708000602	Big Creek	$84,600	$114,000	$7,460	$7,460
1708000603	Grays Bay	$120,000	$162,000	$10,600	$10,600
1709000704	Abernethy Creek	$153,000	$207,000	$13,500	$13,500
1709001101	Collawash River	$16,000	$21,600	$1,410	$1,410
1709001102	Upper Clackamas River	$19,500	$26,400	$1,720	$1,720
1709001103	Oak Grove Fork Clackamas River	$19,500	$26,400	$1,720	$1,720
1709001104	Middle Clackamas River	$13,700	$18,500	$1,200	$1,200
1709001105	Eagle Creek	$32,200	$43,500	$2,840	$2,840
1709001106	Lower Clackamas River	$217,000	$293,000	$19,100	$19,100
1709001201	Johnson Creek	$264,000	$357,000	$23,300	$23,300
1709001202	Scappoose Creek	$168,000	$228,000	$14,900	$14,900
1709001203	Columbia Slough/Willamette River	$612,000	$827,000	$54,000	$54,000
N/A	Lower Columbia Corridor (Sandy/Washougal to Ocean)	$247,000	$334,000	$21,800	$21,800
Total		**$5,480,000**	**$4,050,000**	**$358,000**	**$358,000**

Note: Totals may not sum due to rounding. Discounted at a seven percent discount rate.

EXHIBIT 3-2. SUMMARY OF ANNUAL INCREMENTAL COSTS, BY HUC: PUGET SOUND STEELHEAD

HUC	NAME	PRESENT VALUE (SEVEN PERCENT)	PRESENT VALUE (THREE PERCENT)	ANNUALIZED (SEVEN PERCENT)	ANNUALIZED (THREE PERCENT)
1711000201	Bellingham Bay	$102,000	$138,000	$8,970	$8,970
1711000202	Samish River	$202,000	$272,000	$17,800	$17,800
1711000204	Birch Bay	$87,900	$119,000	$7,760	$7,760
1711000401	Upper North Fork Nooksack River	$2,130	$2,880	$188	$188
1711000402	Middle Fork Nooksack River	$14,900	$20,100	$1,310	$1,310
1711000403	South Fork Nooksack River	$55,400	$74,900	$4,890	$4,890
1711000404	Lower North Fork Nooksack River	$34,600	$46,800	$3,050	$3,050
1711000405	Nooksack River	$86,700	$117,000	$7,650	$7,650
1711000504	Skagit River/Gorge Lake	$2,030	$2,750	$179	$179
1711000505	Skagit River/Diobsud Creek	$0	$0	$0	$0
1711000506	Cascade River	$0	$0	$0	$0
1711000507	Skagit River/Illabot Creek	$4,260	$5,760	$376	$376
1711000508	Baker River	$2,130	$2,880	$188	$188
1711000601	Upper Sauk River	$21,000	$28,400	$1,850	$1,850
1711000602	Upper Suiattle River	$0	$0	$0	$0
1711000603	Lower Suiattle River	$37,600	$50,800	$3,310	$3,310
1711000604	Lower Sauk River	$105,000	$142,000	$9,250	$9,250
1711000701	Middle Skagit River/Finney Creek	$78,200	$106,000	$6,900	$6,900
1711000702	Lower Skagit River/Nookachamps Creek	$122,000	$164,000	$10,700	$10,700
1711000801	North Fork Stillaguamish River	$86,100	$116,000	$7,590	$7,590
1711000802	South Fork Stillaguamish River	$80,100	$108,000	$7,070	$7,070
1711000803	Lower Stillaguamish River	$72,000	$97,300	$6,350	$6,350
1711000901	Tye And Beckler Rivers	$0	$0	$0	$0
1711000902	Skykomish River Forks	$38,400	$51,900	$3,390	$3,390
1711000903	Skykomish River/Wallace River	$39,000	$52,700	$3,440	$3,440
1711000904	Sultan River	$9,230	$12,500	$814	$814
1711000905	Skykomish River/Woods Creek	$69,800	$94,300	$6,160	$6,160
1711001003	Middle Fork Snoqualmie River	$49,500	$66,900	$4,360	$4,360
1711001004	Lower Snoqualmie River	$107,000	$144,000	$9,420	$9,420
1711001101	Pilchuck River	$75,700	$102,000	$6,680	$6,680
1711001102	Snohomish River	$379,000	$512,000	$33,400	$33,400

HUC	NAME	PRESENT VALUE (SEVEN PERCENT)	PRESENT VALUE (THREE PERCENT)	ANNUALIZED (SEVEN PERCENT)	ANNUALIZED (THREE PERCENT)
1711001201	Cedar River	$60,500	$81,800	$5,340	$5,340
1711001202	Lake Sammamish	$182,000	$246,000	$16,000	$16,000
1711001203	Lake Washington	$1,160,000 [Trib. Only $221,000]	$1,570,000 [Trib. Only $299,000]	$103,000 [Trib. Only $19,500]	$103,000 [Trib. Only $19,500]
1711001204	Sammamish River	$270,000	$365,000	$23,800	$23,800
1711001301	Upper Green River	$9,230	$12,500	$814	$814
1711001302	Middle Green River	$9,230	$12,500	$814	$814
1711001303	Lower Green River	$240,000	$325,000	$21,200	$21,200
1711001401	Upper White River	$8,940	$12,100	$789	$789
1711001402	Lower White River	$29,600	$40,000	$2,610	$2,610
1711001403	Carbon River	$29,500	$39,900	$2,600	$2,600
1711001404	Upper Puyallup River	$24,900	$33,600	$2,200	$2,200
1711001405	Lower Puyallup River	$144,000	$194,000	$12,700	$12,700
1711001502	Mashel/Ohop	$23,600	$31,900	$2,080	$2,080
1711001503	Lowland	$50,800	$68,700	$4,490	$4,490
1711001601	Prairie 1	$0	$0	$0	$0
1711001602	Prairie 2	$12,900	$17,400	$1,140	$1,140
1711001701	Skokomish River	$38,300	$51,800	$3,380	$3,380
1711001802	Lower West Hood Canal Frontal	$15,200	$20,600	$1,350	$1,350
1711001803	Hamma Hamma River	$0	$0	$0	$0
1711001804	Duckabush River	$339	$458	$30	$30
1711001805	Dosewallips River	$40,200	$54,300	$3,540	$3,540
1711001806	Big Quilcene River	$7,900	$10,700	$697	$697
1711001807	Upper West Hood Canal Frontal	$21,100	$28,600	$1,860	$1,860
1711001808	West Kitsap	$24,600	$33,200	$2,170	$2,170
1711001900	Kennedy/Goldsborough	$37,300	$50,500	$3,290	$3,290
1711001901	Puget	$176,000	$238,000	$15,500	$15,500
1711001902	Prairie 3	$40,900	$55,200	$3,600	$3,600
1711001904	Puget Sound/East Passage	$163,000	$220,000	$14,300	$14,300
1711001906	Chambers Creek	$9,890	$13,400	$873	$873
1711001908	Port Ludlow/Chimacum Creek	$34,300	$46,400	$3,030	$3,030
1711002001	Discovery Bay	$2,870	$3,890	$254	$254
1711002002	Sequim Bay	$2,130	$2,880	$188	$188
1711002003	Dungeness River	$30,500	$41,300	$2,690	$2,690
1711002004	Port Angeles Harbor	$19,900	$26,900	$1,750	$1,750

HUC	NAME	PRESENT VALUE (SEVEN PERCENT)	PRESENT VALUE (THREE PERCENT)	ANNUALIZED (SEVEN PERCENT)	ANNUALIZED (THREE PERCENT)
1711002007	Elwha River	$337,000	$456,000	$29,800	$29,800
Total		**$5,220,000**	**$7,060,000**	**$461,000**	**$461,000**

Notes: (1) Totals may not sum due to rounding. Discounted at a seven percent discount rate.

(2) Due to the uniquely high impact estimates for the Lake Washington HUC (1711001203), NOAA Fisheries requested that the costs be parsed for tributary areas ("Trib" values in brackets) versus mainstem migratory corridors to assist in conducting the agency's ESA 4(b)(2) analysis, similar to the economic analysis supporting the 2005 salmon and steelhead ddisgnations[32]. In the case of this HUC, NOAA Fisheries is considering designating only the migratory corridor within this watershed and excluding the tributary areas. To support this decision-making process, we identified types of activities that were more likely to be located in tributary areas than in mainstem areas. The division is categorical, which presumes a higher likelihood of being present in one area or another, but not a certainty. The tributary-type activities were identified in the agency's 2005 salmonid critical habitat designations (NOAA Fisheries 2005) and include: Non-hydropower dams, Federal lands management (wilderness and non-wilderness areas), Grazing, Transportation, Mining, Development, and Agricultural pesticide applications.

3.3 ESTIMATED ADMINISTRATIVE IMPACTS

Section 7(a)(1) of the ESA requires that all Federal agencies utilize their authorities to further the purposes of the ESA by carrying out programs for the conservation of endangered and threatened species.

When critical habitat is designated, section 7 requires Federal agencies to ensure that their actions are not likely to result in the destruction or adverse modification of critical habitat (in addition to ensuring that the actions are not 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 project modifications to protect critical habitat are the direct result of the designation of critical habitat. These costs are not in the baseline, and are considered incremental impacts of the rulemaking.

This section describes projected future administrative costs of engaging in section 7 consultation activities that consider the LCR coho and PS steelhead and their critical habitat. Forecast consultations are also categorized by the type of consultation (e.g., informal versus formal) and assigned to the various economic activities identified by NOAA Fisheries.

3.3.1. THE CONSULTATION PROCESS

Section 7(a)(2) of the ESA requires Federal agencies (Action agencies) to consult with NOAA Fisheries whenever activities that they undertake, authorize, or fund may affect a listed species or designated critical habitat. In some cases, consultations will involve NOAA Fisheries and another Federal agency only, such as the U.S. Army Corps of

[32] Personal communication with NOAA Fisheries biologist S. Stone on October 28, 2011.

Engineers. Often, they will also include a third party, such as the recipient of a Clean Water Act section 404 permit.

During a consultation, NOAA Fisheries, the Federal 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 its designated 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 with the proposed activity, the Federal agency, and whether there is a private applicant involved.

Section 7 consultations may be either informal or formal. *Informal consultation*s consist of discussions between NOAA Fisheries, the Federal 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 concerns at an early stage in the planning process. By contrast, a *formal consultation* is required if the Federal action agency 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 determination by NOAA Fisheries as to whether the action is likely to jeopardize a species or adversely modify critical habitat, and includes recommendations to minimize expected impacts. Regardless of the type of consultation or proposed project, section 7 consultations can require substantial administrative effort on the part of all participants depending on the complexity of the particular Federal action and the potential effects to listed species and/or critical habitat. Programmatic consultations are similar to formal consultations except that they generally evaluate planning documents or broad programs that cover a broad suite of activities or projects (e.g., forest plans or USACE regional general permits).

3.3.2. ADMINISTRATIVE SECTION 7 CONSULTATION COSTS

While consultations are required for activities that involve a Federal nexus and which may adversely affect the species regardless of whether critical habitat is designated, critical habitat designation may increase the level of consultation effort in cases where a project or activity may also adversely modify critical habitat. Consultations considering LCR coho and PS steelhead may therefore have both baseline and incremental impacts.

As noted in section 2.3.2, In general, the following 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
2. Re-initiation of consultation to address adverse modification, and
3. Incremental consultation resulting entirely from critical habitat designation

The administrative cost estimates presented in this section take into consideration the level of effort of NOAA Fisheries and the Federal action agency, as well as the varying complexity of the consultation. These estimates, presented in Exhibit 3-3, are based on a survey conducted by NOAA Fisheries as part of the 2005 salmon and steelhead re-designations. Generally, programmatic and formal consultations are more costly than informal consultations and technical assistance, and the cost of consultation to consider jeopardy is higher than the incremental costs of addressing adverse modification to habitat. The greatest administrative costs are associated with programmatic consultations for hydropower and water supply projects. Consultations related to mining projects are also relatively high compared to other types of projects.

EXHIBIT 3-3. ADMINISTRATIVE CONSULTATION COSTS PER EFFORT (2012 DOLLARS)

ACTIVITY	FORMAL			PROGRAMMATIC			INFORMAL			TECH. ASSIST
	NOAA	ACTION AGENCY	TOTAL	NOAA	ACTION AGENCY	TOTAL	NOAA	ACTION AGENCY	TOTAL	TOTAL
Consultation Considering Jeopardy (Does Not Include Consideration of Adverse Modification)										
Hydro-power	$44,336	$7,140	**$51,476**	$44,336	$2,493,436	**$2,537,772**	$693	$18,814	**$19,507**	**$693**
Water Quality	$45,722	$7,140	**$52,862**	$45,722	$2,493,436	**$2,539,158**	$4,849	$18,814	**$23,663**	**$4,157**
Federal Lands Management	$20,783	$4,307	**$25,089**	$20,783	$23,234	**$44,017**	$4,157	$2,040	**$6,197**	**$12,470**
Development	$11,084	$29,015	**$40,099**	$11,084	$79,903	**$90,987**	$1,663	$3,173	**$4,836**	**$277**
Nearshore work	$3,602	$4,194	**$7,796**	$3,602	$13,827	**$17,430**	$2,463	$3,173	**$5,637**	**$13,162**
Mining	$63,733	$93,050	**$156,783**	$63,733	$272,011	**$335,744**	$1,386	$3,173	**$4,559**	**$1,386**
Transportation	$8,313	$22,894	**$31,207**	$8,313	$39,555	**$47,868**	$5,958	$18,474	**$24,432**	**$5,819**
Utilities	$13,162	$13,827	**$26,989**	$13,162	$34,341	**$47,504**	$4,434	$3,173	**$7,607**	**$277**
Commercial Fishing and Other	$5,542	$5,214	**$10,756**	$5,542	$0	**$5,542**	$2,771	$2,607	**$5,378**	**$5,542**
Additional Effort to Address Adverse Modification in a New Consultation										
Hydropower	$14,779	$2,380	**$17,159**	$14,779	$831,145	**$845,924**	$231	$6,271	**$6,502**	**$231**
Water Quality	$15,241	$2,380	**$17,621**	$15,241	$831,145	**$846,386**	$1,616	$6,271	**$7,888**	**$1,386**
Federal Lands Management	$6,928	$1,436	**$8,363**	$6,928	$7,745	**$14,672**	$1,386	$680	**$2,066**	**$4,157**
Development	$3,695	$9,672	**$13,366**	$3,695	$26,634	**$30,329**	$554	$1,058	**$1,612**	**$92**
Nearshore work	$1,201	$1,398	**$2,599**	$1,201	$4,609	**$5,810**	$821	$1,058	**$1,879**	**$4,387**
Mining	$21,244	$31,017	**$52,261**	$21,244	$90,670	**$111,915**	$462	$1,058	**$1,520**	**$462**
Transportation	$2,771	$7,631	**$10,402**	$2,771	$13,185	**$15,956**	$1,986	$6,158	**$8,144**	**$1,940**
Utilities	$4,387	$4,609	**$8,996**	$4,387	$11,447	**$15,835**	$1,478	$1,058	**$2,536**	**$92**
Commercial Fishing and Other	$1,847	$1,738	**$3,585**	$1,847	$0	**$1,847**	$924	$869	**$1,793**	**$1,847**

Sources: Median cost estimates resulting from interviews with NOAA Fisheries and other federal and state agency personnel conducted for NOAA Fisheries, Final Economic Analysis of Critical Habitat Designation for 12 West Coast Salmon and Steelhead DPSs, Seattle, WA, August 2005; Estimates of additional administrative effort for critical habitat for bull trout, U.S. Fish and Wildlife Service, Region 1, October 14, 2009; IEc analysis of full administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2012.

To estimate the fractions of the total administrative consultation costs that are baseline and incremental, the following assumptions were applied:

- Costs associated with an incremental consultation (one occurring because of the designation of critical habitat) would be attributed wholly to 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). As shown in Exhibit 3-3, this analysis assumes that the additional effort to address adverse modification of habitat is equivalent to one third of the effort to address the presence of the species alone. That is, for every three hours spent considering a jeopardy analysis for LCR coho and PS steelhead, an additional hour would be needed to consider LCR coho and PS steelhead critical habitat. This is based on estimates of additional U.S. Fish and Wildlife Service effort for bull trout consultations in the northwest region, which was considered relevant to the current critical habitat designation.

3.3.3. METHODOLOGY

This section presents the methodology used to: (1) estimate the number of future consultations; (2) classify these consultations by economic activity; (3) assign each consultation to a HUC; and (4) calculate anticipated baseline and incremental impacts.

- **Step 1: Classify Consultations by Economic Activity.** While the LCR coho and PS steelhead DPSs were not listed until June 28, 2005, [33] and May 11, 2007,[34] respectively, NOAA Fisheries has an extensive consultation history for other anadromous fish species in the watersheds assessed for critical habitat designation. NOAA Fisheries identifies the specific economic activities covered by each consultation. This analysis aggregated these specific activities into general activity groups: federal lands management, development, water supply, in-stream work, transportation, hydropower, mining, transportation, utilities, and other activities. For example, consultations that NOAA Fisheries identified with the activity "waterway--dredging" and "waterway--boat/dock/pier" both would be classified as in-stream construction.

  Multiple consultations affected more than one activity. For example, a bridge project that requires pile-driving in a river may fall within both the transportation and in-stream construction categories. Because the administrative effort needed may be lower or higher depending on the type of activity considered, this analysis divides consultations across multiple

[33] 70 FR 37160.

[34] 72 FR 26722.

categories as needed. The bridge project example above would, therefore, be counted as half transportation and half in-stream construction.

- **Step 2: Assign Consultations by Critical Habitat Unit.** For formal, informal, and technical assistance consultations, NOAA Fisheries provided consultation history by HUC. However, programmatic consultations may cover activities taking place over multiple HUCs (e.g., a regional general permit from USACE). Because programmatic consultations cannot be assigned to a specific area, this analysis uniformly distributes them across all HUCs in the NOAA Fisheries Northwest Region.
- **Step 3: Estimate Future Consultations.** This analysis assumes that, for LCR coho and PS steelhead, the frequency of consultation and the activities considered will be the same as this consultation history on a per watershed basis. That is, it assumes that LCR coho and PS steelhead consultations in a particular watershed will occur at the average rate of consultation for other fish species over the past ten years in that watershed.
- **Step 4: Calculate Anticipated Incremental Costs.** Because most areas are occupied by the species or contain designated critical habitat for other salmonid species, incremental costs associated with the additional effort needed to address potential adverse modification of habitat for LCR coho and PS steelhead are limited in most areas. The analysis assumes that the administrative effort to address jeopardy forms part of the baseline effort to consider other NOAA Fisheries-listed species present in these HUCs (i.e., other listed salmon/steelhead DPSs and eulachon). As a result, the only incremental administrative effort in most watersheds is to address potential adverse modification. In the Elwha River HUC, which is largely unoccupied by PS steelhead, both administrative and project modification costs are assumed to be incremental.

Elwha River, HUC 1711002007, is the only area assessed for critical habitat that contains unoccupied stream reaches. The HUC does not contain PS steelhead or any other listed salmonid species. Therefore, section 7 consultations in this HUC, including associated project modifications, are considered to be incremental impacts of the designation of critical habitat. Based on the consultation record from 2001 to 2010 in the Elwha River HUC, we anticipate 0.2 consultations per year related to instream work, specifically related to fish restoration projects.

In the absence of information about the specific nature and costs of project modifications related to future consultations, this analysis develops an estimate of potential impacts based on the average cost of a restoration project. To develop the average cost of a restoration project, this analysis uses data contained in a database of restorations projects developed in California (Calfish database).[35] According to Calfish, the average cost of

[35] Restoration project data is available from the Calfish program, a cooperative effort headed by California Department of Fish and Game (CDFG) Wildlife and Habitat Data Analysis Branch and CDFG NCNCR Information Services Branch. Accessed at

restoration projects range from $15,000 (for project maintenance activities) to $487,000 (habitat acquisition and conservation easements). The average cost of nearly 3,000 Calfish restoration projects is approximately $135,000 (2007 dollars). Using an average estimated cost of $135,000 per restoration project, this analysis anticipates project modification costs for the Elwha River HUC at $319,000 over the next 20 years (or $28,200 on an annualized basis), assuming a seven percent discount rate.

3.4 INCREMENTAL PROJECT MODIFICATION COSTS

The annual number of total section 7 actions forecast is shown by HUC/watershed and by activity in Exhibit 3-4 (Lower Columbia River) and Exhibit 3-5 (Puget Sound). We anticipate a total of 55 section 7 consultations in the lower Columbia River and 117 consultations in Puget Sound to occur annually. We expect the greatest number of consultations (37) will occur in the Lake Washington HUC (1711001203).

As calculated using the steps outlined above**,** total estimated incremental administrative impacts are summarized in Exhibit 3-6 and 3-7 for the lower Columbia River HUCs and Puget Sound HUCs, respectively.

For example, the first row of Exhibit 3-6 shows the forecasted annual consultations for HUC# 1707010506. The HUC is forecasted to experience 1.2 formal consultations, 0.2 informal consultations, and 0.4 technical assistance consultations annually. Multiplying these figures by the activity-specific administrative cost figure from Exhibit 3-3, yields the annualized cost figure of $13,500. Future consultation forecasts by activity are presented in greater detail in Appendix C.

Repeating this approach across all of the HUCs, we anticipate incremental costs of $358,000 on an annualized basis (assuming a seven percent discount rate) if all habitat areas were designated critical habitat for LCR coho, and $461,000 on an annualized basis (assuming a seven percent discount rate) if all habitat areas were designated critical habitat for PS steelhead.

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http://www.calfish.org/Programs/CalFishPrograms/RestorationProjects/tabid/85/Default.aspx on November 8, 2011 (data pull August 2007).

EXHIBIT 3-4. FORECAST ANNUAL NUMBER OF FUTURE SECTION 7 ACTIONS BY WATERSHED AND ACTIVITY[36]: LCR COHO

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1707010506	0.0	0.0	0.3	0.0	0.9	0.1	0.4	0.0	0.0	1.7
1707010507	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.3
1707010508	0.2	0.0	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.6
1707010509	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
1707010510	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.3	0.6
1707010511	0.0	0.0	0.2	0.0	0.6	0.0	0.3	0.0	0.0	1.1
1707010512	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1707010513	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.6
1708000101	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.4
1708000102	0.1	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.6
1708000103	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3
1708000104	0.0	0.0	0.2	0.0	0.3	0.0	0.5	0.0	0.1	1.0
1708000105	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2
1708000106	0.0	0.0	0.4	0.0	0.2	0.1	0.1	0.0	0.1	0.9
1708000107	0.4	0.1	1.0	0.0	0.9	0.0	0.0	0.0	0.1	2.6
1708000108	0.1	0.1	0.1	0.0	0.2	0.0	0.1	0.0	0.2	0.8
1708000109	0.2	0.0	1.3	0.0	1.3	0.0	0.0	0.0	0.3	3.1
1708000201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1708000202	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1708000203	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1708000204	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1708000205	0.0	0.1	0.1	0.1	0.6	0.0	0.1	0.0	0.1	1.1
1708000206	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.4
1708000301	0.2	0.0	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.8
1708000302	0.0	0.0	0.9	0.0	0.3	0.0	0.1	0.0	0.0	1.3

[36] Section 7 actions include all completed section 7 consultations categorized as formal, informal, programmatic, conference, implementation, and pre-consultation/technical assistance.

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1708000303	0.0	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.5
1708000304	0.0	0.0	0.4	0.0	0.9	0.0	0.1	0.0	0.0	1.4
1708000305	0.0	0.0	1.0	0.0	0.2	0.0	0.2	0.0	0.0	1.4
1708000306	0.0	0.0	0.2	0.0	0.7	0.1	0.0	0.0	0.1	1.1
1708000401	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1708000402	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
1708000403	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.6
1708000404	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1708000405	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.5
1708000501	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.4
1708000502	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.3
1708000503	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1708000504	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1708000505	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1708000506	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1708000507	0.1	0.0	0.1	0.0	0.3	0.0	0.1	0.0	0.2	0.8
1708000508	0.0	0.0	0.2	0.0	0.8	0.0	0.1	0.0	0.0	1.1
1708000601	0.0	0.0	1.0	0.0	0.9	0.0	0.0	0.0	0.1	2.0
1708000602	0.1	0.0	0.2	0.0	0.4	0.0	0.1	0.0	0.1	0.9
1708000603	0.1	0.0	0.5	0.0	0.5	0.0	0.3	0.0	0.4	1.8
1709000704	0.1	0.0	0.6	0.0	0.7	0.0	0.2	0.1	0.1	1.8
1709001101	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1709001102	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
1709001103	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
1709001104	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1709001105	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
1709001106	0.0	0.1	0.6	0.0	1.6	0.0	0.1	0.0	0.1	2.5
1709001201	0.1	0.0	0.9	0.0	1.8	0.1	0.4	0.0	0.2	3.4

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1709001202	0.1	0.1	0.8	0.0	0.6	0.0	0.3	0.0	0.4	2.3
1709001203	0.2	0.1	3.5	0.0	3.8	0.0	0.6	0.0	0.4	8.5
Lower Columbia Corridor (Sandy/Washougal to Ocean)	0.0	0.0	2.9	0.2	0.3	0.0	0.1	0.0	0.2	3.7
Total	2.4	2.1	19.0	0.3	20.5	0.5	5.0	0.2	5.0	54.9

Note: Each section 7 action forecast receives costs associated with its consultation type (e.g., formal, informal, programmatic, or technical assistance) and activity. Additional detail is provided in Appendix C. Estimates are based on the average number of past consultations for fish species in these watersheds over the last ten years (i.e., 2001 to 2010).

EXHIBIT 3-5. FORECAST ANNUAL NUMBER OF FUTURE SECTION 7 ACTIONS BY WATERSHED AND ACTIVITY[37]: PUGET SOUND STEELHEAD

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000201	0.2	0.0	3.1	0.0	0.2	0.1	0.0	0.0	0.0	3.6
1711000202	0.4	0.0	3.7	0.0	0.5	0.0	0.5	0.0	0.3	5.4
1711000204	0.1	0.0	1.6	0.0	0.4	0.2	0.1	0.0	0.0	2.4
1711000401	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1711000402	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
1711000403	0.0	0.1	0.7	0.0	0.3	0.0	0.0	0.0	0.0	1.1
1711000404	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.5
1711000405	0.0	0.0	1.3	0.0	0.5	0.1	0.0	0.0	0.0	1.9
1711000504	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1711000505	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711000506	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711000507	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1711000508	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1711000601	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
1711000602	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711000603	0.2	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.5
1711000604	0.0	0.0	0.1	0.0	1.2	0.0	0.0	0.0	0.1	1.4
1711000701	0.0	0.0	0.7	0.0	0.2	0.1	0.2	0.0	0.1	1.3
1711000702	0.1	0.0	1.7	0.0	0.1	0.0	0.4	0.1	0.1	2.5
1711000801	0.2	0.0	0.9	0.0	0.3	0.0	0.1	0.0	0.0	1.5
1711000802	0.1	0.0	0.3	0.0	1.0	0.0	0.1	0.0	0.0	1.5
1711000803	0.0	0.0	0.5	0.0	0.4	0.0	0.2	0.0	0.2	1.3
1711000901	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

[37] Section 7 actions include all completed section 7 consultations categorized as formal, informal, programmatic, conference, implementation, and pre-consultation/technical assistance.

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000902	0.0	0.0	0.5	0.1	0.1	0.0	0.1	0.0	0.0	0.8
1711000903	0.1	0.0	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.8
1711000904	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
1711000905	0.0	0.0	0.4	0.0	0.7	0.0	0.0	0.1	0.0	1.2
1711001003	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.1	0.7
1711001004	0.1	0.0	0.3	0.0	0.7	0.2	0.1	0.0	0.0	1.4
1711001101	0.3	0.0	0.4	0.0	0.7	0.1	0.1	0.0	0.0	1.5
1711001102	0.9	0.0	3.7	0.0	1.9	0.7	1.0	0.0	0.5	8.6
1711001201	0.2	0.0	0.5	0.0	0.4	0.0	0.1	0.0	0.0	1.2
1711001202	0.2	0.0	5.0	0.0	0.6	0.0	0.0	0.0	0.0	5.7
1711001203	1.3	0.0	32.2	0.0	2.1	0.0	1.1	0.0	0.4	37.0
1711001204	1.3	0.0	1.0	0.0	1.8	0.0	0.4	0.0	0.2	4.6
1711001301	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
1711001302	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
1711001303	0.6	0.0	3.4	0.0	1.1	0.0	0.4	0.0	0.3	5.8
1711001401	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
1711001402	0.1	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.5
1711001403	0.0	0.0	0.4	0.1	0.2	0.0	0.0	0.0	0.0	0.7
1711001404	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.4
1711001405	0.1	0.1	1.4	0.0	1.1	0.0	0.2	0.0	0.0	2.9
1711001502	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
1711001503	0.0	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.4	1.1
1711001601	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711001602	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.3
1711001701	0.0	0.0	1.2	0.0	0.3	0.0	0.0	0.0	0.0	1.5
1711001803	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711001802	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1711001804	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1711001805	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.1	0.5
1711001806	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.3
1711001807	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.1	0.6
1711001808	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0	0.1	0.8
1711001900	0.0	0.0	0.9	0.0	0.1	0.0	0.1	0.0	0.0	1.1
1711001901	0.3	0.1	1.7	0.0	1.2	0.0	0.1	0.0	0.2	3.6
1711001902	0.0	0.0	0.1	0.0	0.3	0.0	0.1	0.0	0.1	0.6
1711001904	0.6	0.0	1.8	0.0	0.6	0.0	0.6	0.0	0.2	3.8
1711001906	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.3
1711001908	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.2	0.6
1711002001	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1711002002	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1711002003	0.0	0.0	0.4	0.0	0.0	0.0	0.2	0.0	0.0	0.6
1711002004	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.2	0.6
1711002007	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total	**7.5**	**0.4**	**73.1**	**0.2**	**22.5**	**1.4**	**6.9**	**0.2**	**4.5**	**116.7**

Note: Totals may not sum due to rounding. Each section 7 action forecast receives costs associated with its consultation type (e.g., formal, informal, programmatic, or technical assistance) and activity. Additional detail is provided in Appendix C. Estimates are based on the average number of past consultations for other migratory fish species in these watersheds over the last ten years (i.e., 2001 to 2010).

EXHIBIT 3-6. ANNUAL NUMBER AND COSTS OF FORECAST CONSULTATIONS BY WATERSHED AND CONSULTATION TYPE: LOWER COLUMBIA RIVER COHO SALMON

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL ACTIONS	ANNUALIZED COSTS (SEVEN PERCENT)	ANNUALIZED COSTS (THREE PERCENT)
1707010506	1.1	0.2	0.0	0.4	1.7	$13,500	$13,500
1707010507	0.1	0.1	0.1	0.1	0.3	$1,650	$1,650
1707010508	0.2	0.3	-	0.1	0.6	$3,890	$3,890
1707010509	0.0	-	-	0.2	0.2	$392	$392
1707010510	0.4	0.1	-	0.1	0.6	$2,660	$2,660
1707010511	0.8	0.2	0.0	0.1	1.1	$10,600	$10,600
1707010512	0.1	-	-	-	0.1	$282	$282
1707010513	0.4	0.2	0.0	0.0	0.6	$4,540	$4,540
1708000101	0.1	-	0.0	0.2	0.4	$1,700	$1,700
1708000102	0.4	0.1	0.0	0.1	0.6	$5,280	$5,280
1708000103	0.2	-	0.0	0.0	0.3	$2,420	$2,420
1708000104	0.7	0.2	0.0	0.1	1.0	$8,820	$8,820
1708000105	0.1	-	0.0	0.0	0.2	$2,100	$2,100
1708000106	0.2	0.6	-	0.1	0.9	$3,480	$3,480
1708000107	1.6	0.9	0.0	0.1	2.6	$13,400	$13,400
1708000108	0.5	0.1	0.1	0.0	0.8	$5,980	$5,980
1708000109	1.2	1.7	-	0.3	3.1	$16,900	$16,900
1708000201	0.0	0.1	-	-	0.1	$112	$112
1708000202	0.1	0.1	-	-	0.1	$530	$530
1708000203	0.1	-	-	-	0.1	$418	$418
1708000204	-	0.1	-	-	0.1	$161	$161
1708000205	0.4	0.8	-	0.0	1.1	$11,900	$11,900
1708000206	-	0.4	-	-	0.4	$1,940	$1,940
1708000301	0.2	0.6	-	-	0.8	$2,260	$2,260
1708000302	0.5	0.6	-	0.2	1.3	$6,060	$6,060
1708000303	0.5	-	0.0	0.0	0.5	$4,010	$4,010

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL ACTIONS	ANNUALIZED COSTS (SEVEN PERCENT)	ANNUALIZED COSTS (THREE PERCENT)
1708000304	0.1	1.3	-	-	1.4	$8,940	$8,940
1708000305	0.5	0.8	-	0.1	1.4	$6,190	$6,190
1708000306	1.0	0.1	-	-	1.1	$8,230	$8,230
1708000401	0.0	-	-	-	0.0	$22	$22
1708000402	0.0	0.2	-	-	0.2	$305	$305
1708000403	0.0	0.6	-	-	0.6	$2,370	$2,370
1708000404	0.0	0.1	-	-	0.1	$229	$229
1708000405	0.3	0.2	-	-	0.5	$1,740	$1,740
1708000501	0.2	0.2	-	-	0.4	$4,480	$4,480
1708000502	-	0.3	-	-	0.3	$1,820	$1,820
1708000503	-	-	-	-	-	$0	$0
1708000504	0.0	-	-	-	0.0	$22	$22
1708000505	0.0	-	-	-	0.0	$22	$22
1708000506	0.1	-	-	-	0.1	$359	$359
1708000507	0.2	0.6	-	-	0.8	$5,140	$5,140
1708000508	0.3	0.7	-	0.1	1.1	$8,610	$8,610
1708000601	1.1	0.3	-	0.6	2.0	$10,800	$10,800
1708000602	0.6	0.3	-	-	0.9	$7,460	$7,460
1708000603	0.8	0.9	-	0.1	1.8	$10,600	$10,600
1709000704	1.2	0.6	0.0	0.0	1.8	$13,500	$13,500
1709001101	0.0	0.1	0.1	0.0	0.2	$1,410	$1,410
1709001102	0.1	-	0.1	0.0	0.2	$1,720	$1,720
1709001103	0.1	-	0.1	0.0	0.2	$1,720	$1,720
1709001104	0.0	-	0.1	0.0	0.1	$1,200	$1,200
1709001105	0.1	0.1	0.0	0.0	0.2	$2,840	$2,840
1709001106	1.8	0.6	0.1	0.0	2.5	$19,100	$19,100
1709001201	2.2	0.9	0.0	0.3	3.4	$23,300	$23,300
1709001202	1.6	0.5	0.0	0.2	2.3	$14,900	$14,900

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL ACTIONS	ANNUALIZED COSTS (SEVEN PERCENT)	ANNUALIZED COSTS (THREE PERCENT)
1709001203	6.0	2.0	0.0	0.5	8.5	$54,000	$54,000
Lower Columbia Corridor (Sandy/Washougal to Ocean)	1.4	1.9	-	0.4	3.7	$21,800	$21,800
Total	**29.2**	**20.1**	**0.8**	**4.8**	**54.9**	**$358,000**	**$358,000**

Notes:

1. Each section 7 action forecast receives costs associated with its consultation type (e.g., formal, informal, programmatic, or technical assistance) and activity. Additional detail is provided in Appendix C. Estimates are based on the average number of past consultations for fish species in these watersheds over the last ten years (i.e., 2001-2010).
2. Because some consultations span multiple watersheds, and because past consultation rates are averaged, anticipated consultations are sometimes presented as decimals.
3. Actions recorded as "formal" above include 12.3 consultations annually that were recorded as "Implementation" consultations in the PCTS database.

Costs are discounted at seven percent and annualized over 20 years.

EXHIBIT 3-7. ANNUAL NUMBER OF CONSULTATIONS FORECAST BY WATERSHED AND CONSULTATION TYPE: PUGET SOUND STEELHEAD

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL ACTIONS	ANNUALIZED COSTS (SEVEN PERCENT)	ANNUALIZED COSTS (THREE PERCENT)
1711000201	0.3	2.9	0.0	0.3	3.6	$8,970	$8,970
1711000202	1.5	3.9	0.0	0.0	5.4	$17,800	$17,800
1711000204	-	2.4	-	-	2.4	$7,760	$7,760
1711000401	-	0.1	-	-	0.1	$188	$188
1711000402	0.1	0.0	-	-	0.1	$1,310	$1,310
1711000403	0.4	0.6	-	0.1	1.1	$4,890	$4,890
1711000404	0.1	0.4	0.1	-	0.6	$3,050	$3,050
1711000405	0.5	1.3	-	0.1	1.9	$7,650	$7,650
1711000504	-	0.1	-	-	0.1	$179	$179
1711000505	-	-	-	-	-	$0	$0
1711000506	-	-	-	-	-	$0	$0
1711000507	-	0.2	-	-	0.2	$376	$376
1711000508	-	0.1	-	-	0.1	$188	$188
1711000601	0.1	0.1	-	-	0.2	$1,850	$1,850
1711000602	-	-	-	-	-	$0	$0
1711000603	0.1	0.4	-	-	0.5	$3,310	$3,310
1711000604	0.5	0.6	-	0.3	1.4	$9,250	$9,250
1711000701	0.2	1.1	-	-	1.3	$6,900	$6,900
1711000702	0.6	1.8	-	0.1	2.5	$10,700	$10,700
1711000801	0.4	0.7	-	0.4	1.5	$7,590	$7,590
1711000802	0.4	0.5	-	0.6	1.5	$7,070	$7,070
1711000803	0.3	1.0	-	-	1.3	$6,350	$6,350
1711000901	-	-	-	-	-	$0	$0
1711000902	0.4	0.3	-	0.1	0.8	$3,390	$3,390
1711000903	0.1	0.5	-	0.2	0.8	$3,440	$3,440
1711000904	-	0.1	-	-	0.1	$814	$814
1711000905	0.2	0.7	-	0.3	1.2	$6,160	$6,160
1711001003	-	0.6	-	0.1	0.7	$4,360	$4,360
1711001004	0.6	0.8	-	-	1.4	$9,420	$9,420
1711001101	-	1.3	-	0.2	1.5	$6,680	$6,680
1711001102	0.9	7.1	0.0	0.6	8.6	$33,400	$33,400
1711001201	0.2	1.0	-	0.1	1.2	$5,340	$5,340
1711001202	2.9	2.7	0.0	0.1	5.7	$16,000	$16,000

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL ACTIONS	ANNUALIZED COSTS (SEVEN PERCENT)	ANNUALIZED COSTS (THREE PERCENT)
1711001203	17.5	19.0	0.2	0.3	37.0	$103,000	$103,000
1711001204	0.5	4.1	0.0	-	4.6	$23,800	$23,800
1711001301	-	0.1	-	-	0.1	$814	$814
1711001302	-	0.1	-	-	0.1	$814	$814
1711001303	1.2	4.3	0.0	0.3	5.8	$21,200	$21,200
1711001401	-	0.1	-	-	0.1	$789	$789
1711001402	0.1	0.4	-	-	0.5	$2,610	$2,610
1711001403	0.1	0.6	-	-	0.7	$2,600	$2,600
1711001404	0.1	0.3	-	-	0.4	$2,200	$2,200
1711001405	0.7	1.7	0.1	0.4	3.0	$12,700	$12,700
1711001502	0.2	-	-	-	0.2	$2,080	$2,080
1711001503	-	0.9	-	0.2	1.1	$4,490	$4,490
1711001601	-	-	-	-	-	$0	$0
1711001602	-	0.3	-	-	0.3	$1,140	$1,140
1711001701	0.0	0.8	-	-	1.5	$3,380	$3,380
1711001802	0.0	0.7	-	-	-	$1,350	$1,350
1711001803	-	-	-	-	-	$0	$0
1711001804	0.0	-	-	-	0.0	$30	$30
1711001805	0.2	0.2	-	0.1	0.5	$3,540	$3,540
1711001806	0.2	0.1	-	0.1	0.3	$697	$697
1711001807	0.1	0.6	-	-	0.6	$1,860	$1,860
1711001808	0.2	0.6	-	-	0.8	$2,170	$2,170
1711001900	-	1.1	-	-	1.1	$3,290	$3,290
1711001901	0.5	3.1	0.1	0.0	3.7	$15,500	$15,500
1711001902	-	0.5	-	0.1	0.6	$3,600	$3,600
1711001904	0.6	2.8	-	0.4	3.8	$14,300	$14,300
1711001906	-	0.3	-	-	0.3	$873	$873
1711001908	0.1	0.5	-	-	0.6	$3,030	$3,030
1711002001	0.0	0.1	-	-	0.1	$254	$254
1711002002	-	0.1	-	-	0.1	$188	$188
1711002003	0.1	0.4	0.0	0.1	0.6	$2,690	$2,690
1711002004	0.0	0.6	0.0	-	0.6	$1,750	$1,750
1711002007[3]	0.2	-	-	-	0.2	$29,800	$29,800
Total	**33.3**	**78.1**	**0.7**	**5.7**	**117.8**	**$461,000**	**$461,000**

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL ACTIONS	ANNUALIZED COSTS (SEVEN PERCENT)	ANNUALIZED COSTS (THREE PERCENT)

Notes:

1. Each section 7 action forecast receives costs associated with its consultation type (e.g., formal, informal, programmatic, or technical assistance) and activity. Additional detail is provided in Appendix C. Estimates are based on the average number of past consultations for other migratory fish species in these watersheds over the last ten years (i.e., 2001 to 2010).

2. Actions recorded as "formal" above include 23.2 consultations annually that were recorded as "Implementation" consultations in the PCTS database.

3. This unit includes both administrative and project modification costs. Assuming a seven percent discount rate, annualized cost estimates for HUC 1711002007, the Elwha River HUC, include administrative costs of $1,047 and project modification costs of $19,478. Assuming a three percent discount rate, annualized cost estimates for HUC 1711002007, the Elwha River HUC, include administrative costs of $1,470 and project modification costs of $27,354.

APPENDIX A | INITIAL REGULATORY FLEXIBILITY ANALYSIS AND ENERGY IMPACTS ANALYSIS

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.

The analyses of impacts to small entities and the energy industry rely on the estimated incremental impacts resulting from the possible designation of critical habitat for LCR coho and PS steelhead. The incremental impacts of the designation 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 designations. Incremental impacts are detailed in Chapter 2 of this analysis.

A.1 INITIAL REGULATORY FLEXIBILITY ANALYSIS

This IRFA uses the best available information to identify the potential impacts of critical habitat on small entities. However, a number of uncertainties make specific identification of these impacts difficult, including: 1) the future regulatory burden of critical habitat, in terms of conservation efforts and administrative costs, is uncertain, as discussed in the main body of this report; 2) the manner in which the future regulatory burden will be allocated between large and small entities is unknown; 3) the specific locations of small entities is only available at the county level. To account for uncertainty, this analysis utilizes the high end of the estimated range of potential annualized incremental impacts, as reported in the main body of this report. It then uses two scenarios to describe potential impacts to small entities.

A.1.1. SUMMARY OF FINDINGS

Estimated impacts to small entities, by industry, are summarized in Exhibit A-1. Of potentially affected entities, 89 percent are classified as likely to be "small." Total annualized impacts to small entities are estimated to be $209,000 for areas assessed for LCR coho critical habitat, or approximately 58.4 percent of total incremental impacts anticipated as a result of this rule.[91] Total annualized impacts to small entities for areas

[91] Total annualized impacts to small entities is calculated by first estimating the portion of administrative costs that may be borne by third parties. In this case, we assume that administrative costs other than NOAA Fisheries costs are likely to be borne by third parties. In fact, some of these costs will be borne by Federal action agencies. This analysis then assumes that the portion of these impacts that may be borne by small entities is equivalent to the percentage of businesses that are

assessed for PS steelhead critical habitat are estimated to be $298,000, or approximately 64.6 percent of total incremental impacts.

Exhibits A-1 and A-2 also present the number of potentially affected small entities, under two scenarios. These scenarios are intended to provide a measure of uncertainty regarding the number of small entities that may be affected by the designation. Under Scenario 1, this analysis estimates the number of small entities located within areas that may be affected by the proposed designation (approximately 5,381 for LCR coho, 12,758 for PS steelhead), and assumes that incremental impacts are distributed evenly across all entities in each affected industry. Under this scenario, for LCR coho, a small entity may bear costs up to $3,430, representing less than 0.12 percent of average revenues (depending on the industry). For PS steelhead, a small entity may bear costs up to $1,260, representing less than 0.05 percent of average revenues (depending on the industry).

Under Scenario 2, this analysis assumes costs of each anticipated future consultation are borne by a distinct small business (approximately 55 entities for LCR coho, 117 for PS steelhead). Under this scenario, in the range of LCR coho critical habitat, each small entity may bear costs of between $1,120 and $31,000, representing between <0.01 and 0.463 percent of average annual revenues, depending on the industry. In the range of PS steelhead critical habitat, each small entity may bear costs of between $510 and $5,930, representing between <0.01 and 0.17 percent of average annual revenues, depending on the industry.

A.1.2. IRFA REQUIREMENTS

First enacted in 1980, the RFA was designed to ensure that Federal agencies consider the potential for their regulations to unduly inhibit the ability of small entities to compete. The goals of the RFA include increasing the government's awareness of the impact of regulations on small entities and to encourage agencies to exercise flexibility in their rulemakings to provide regulatory relief to small entities.

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).[92] For this rulemaking, this analysis takes the form of an initial regulatory flexibility analysis (IRFA). Under 5 U.S.C., Section 603(b) of the RFA, an IRFA is required to contain:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and legal basis for, the proposed rule;
- A description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;

considered small. For example, if 89 percent of entities engaged in transportation activities in a given unit are considered small, this analysis assumes that 89 percent of impacts for that unit and industry will be borne by small entities.

[92] 5 U.S.C. 601 et seq.

- A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap or conflict with the proposed rule.
- Each initial regulatory flexibility analysis shall also contain a description of any significant alternatives to the proposed rule that accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

EXHIBIT A-1. SUMMARY OF ESTIMATED IMPACTS TO SMALL ENTITIES BY ACTIVITY TYPE: LCR COHO

	UNIT NAME	HYDROPOWER[2]	DEVELOPMENT	IN-STREAM WORK	WATER SUPPLY	FEDERAL LANDS MANAGEMENT	TRANSPOR-TATION	UTILITIES	MINING	OTHER
[A]	Total Annualized Impacts to Small Entities[1]	$476	$9,110	$21,900	$19,100	$7,170	$135,000	$884	$9,310	$5,910
[B]	Estimated Average Annual Revenues for Small Entities[1]	-	$11,000,000	$6,610,000	$3,010,000	$2,590,000	$9,830,000	$34,000,000	$6,710,000	$6,550,000
Scenario 1: Assumes All Small Entities Share Incremental Costs Equally										
[C]	Estimated Number of Small Entities within Proposed CH	-	4,486	116	6	444	166	11	76	76
[D]	Estimated Impact per Small Entity ([A]/[C])	-	$2.03	$190.00	$3,430.00	$16.10	$814.00	$79.40	$122.00	$77.70
[E]	Impact per Small Entity as Percentage of Revenues ([D]/[B])	-	<0.01%	<0.01%	0.11%	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Scenario 2: Assumes All Consultations Involve One Small Entity										
[F]	Estimated Number of Small Entities Expected to Undergo Consultation	-	2.4	19	5	2.1	20.45	0.5	0.3	4.95
[G]	Estimated Impact per Small Entity ([A]/[F])	$2,380	$3,800	$1,150	$3,820	$3,410	$6,600	$1,770	$31,000	$1,190
[H]	Impact per Small Entity as Percentage of Revenues ([G]/[B])	-	0.03%	0.02%	0.13%	0.13%	0.07%	<0.01%	0.46%	0.02%

Notes:

1. Annual revenues are estimated using Risk Management Association (RMA), *Annual Statement Studies: Financial Ratio Benchmarks 2010 to 2011,* 2011. The following method was used to develop these estimates:

   (a) Matched affected economic activities to available NAICS codes in RMA data. The following codes are used for affected industries: Hydropower (221111, 221112, 221113, 221119, 221121, 221122), Development (236115, 236116, 236117, 237210), Instream work (237120, 237990, 713930), Water Supply (221310), Federal Lands Management (113110, 113310 112111), Transportation (237310), Mining (212321), Utilities (237130) and Other activities (237110). Where possible, these correspond to the NAICS codes noted in Exhibit A-2.

   (b) For each NAICS code, RMA provides the net sales and the number of entities falling within several sales categories: $0 to $1 million, $1 to 3 million, $3 to $5 million, $5 to $10 million, $10 to $25 million, and greater than $25 million. Based on the number of entities and total net sales falling within each sales category, developed an estimate of average net sales (revenues) per small entity. Specifically, the analysis averages data for the sales categories at or below the small business threshold for each industry. For example, if the small business threshold is $7 million, this analysis uses the following sales categories: $0 to $1 million, $1 to 3 million, $3 to $5 million, and $5 to $10 million. For transportation-related activities (threshold of $33.5 million), this analysis used sales categories up to $10 to $25 million. This represents a conservative approach to the analysis, as revenues per entity will appear lower, and therefore impacts higher, than if higher revenue categories were included.

2. Small business information was not readily available for Hydropower.

EXHIBIT A-2. SUMMARY OF ESTIMATED IMPACTS TO SMALL ENTITIES BY ACTIVITY TYPE: PS STEELHEAD

	UNIT NAME	HYDROPOWER[2]	DEVELOPMENT	IN-STREAM WORK	WATER SUPPLY	FEDERAL LANDS MANAGEMENT	TRANSPOR-TATION	UTILITIES	MINING	OTHER
[A]	Total Annualized Impacts to Small Entities[1]	$865	$9,660	$114,000	$33,900	$204	$133,000	$1,480	$212	$3,880
[B]	Estimated Average Annual Revenues for Small Entities[1]	-	$11,000,000	$6,610,000	$3,010,000	$2,590,000	$9,830,000	$34,000,000	$6,710,000	$6,550,000
Scenario 1: Assumes All Small Entities Share Incremental Costs Equally										
[C]	Estimated Number of Small Entities within Proposed CH	-	11019	341	27	546	374	41	180	230
[D]	Estimated Impact per Small Entity ([A]/[C])	-	$0.88	$334.00	$1,260.00	$0.37	$357.00	$36.00	$1.18	$16.80
[E]	Impact per Small Entity as Percentage of Revenues ([D]/[B])	-	<0.01%	<0.01%	0.04%	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Scenario 2: Assumes All Consultations Involve One Small Entity										
[F]	Estimated Number of Small Entities Expected to Undergo Consultation	-	7.5	73.1	6.9	0.4	22.5	1.4	0.2	4.5
[G]	Estimated Impact per Small Entity ([A]/[F])	$4,330.00	$1,290.00	$1,560.00	$4,910.00	$510.00	$5,930.00	$1,060.00	$1,060.00	$866.00
[H]	Impact per Small Entity as Percentage of Revenues ([G]/[B])	-	0.01%	0.02%	0.16%	0.02%	0.06%	<0.01%	0.02%	0.01%

	UNIT NAME	HYDROPOWER[2]	DEVELOPMENT	IN-STREAM WORK	WATER SUPPLY	FEDERAL LANDS MANAGEMENT	TRANSPOR-TATION	UTILITIES	MINING	OTHER

Notes:

1. Annual revenues are estimated using Risk Management Association (RMA), *Annual Statement Studies: Financial Ratio Benchmarks 2010 to 2011,* 2011. The following method was used to develop these estimates:

   (a) Matched affected economic activities to available NAICS codes in RMA data. The following codes are used for affected industries: Hydropower (221111, 221112, 221113, 221119, 221121, 221122), Development (236115, 236116, 236117, 237210), Instream work (237120, 237990, 713930), Water Supply (221310), Federal Lands Management (113110, 113310 112111), Transportation (237310), Mining (212321), Utilities (237130) and Other activities (237110). Where possible, these correspond to the NAICS codes noted in Exhibit A-2.

   (b) For each NAICS code, RMA provides the net sales and the number of entities falling within several sales categories: $0 to $1 million, $1 to 3 million, $3 to $5 million, $5 to $10 million, $10 to $25 million, and greater than $25 million. Based on the number of entities and total net sales falling within each sales category, developed an estimate of average net sales (revenues) per small entity. Specifically, the analysis averages data for the sales categories at or below the small business threshold for each industry. For example, if the small business threshold is $7 million, this analysis uses the following sales categories: $0 to $1 million, $1 to 3 million, $3 to $5 million, and $5 to $10 million. For transportation-related activities (threshold of $33.5 million), this analysis used sales categories up to $10 to $25 million. This represents a conservative approach to the analysis, as revenues per entity will appear lower, and therefore impacts higher, than if higher revenue categories were included.

2. Small business information was not readily available for Hydropower.

A.1.3. NEEDS AND OBJECTIVES OF THE RULE

On June 28, 2005, NOAA Fisheries listed the Lower Columbia River coho salmon Distinct Population Segment (DPS) along with 15 other salmonid DPSs, as threatened or endangered under the ESA.[93] Later, on May 11, 2007, NOAA Fisheries listed the DPS of steelhead in Puget Sound as threatened under the ESA.[94]

Section 4(b)(2) of the ESA requires NOAA to designate critical habitat for threatened and endangered species "on the basis of the best scientific data available and after taking into consideration the economic impact, impact on national security, and any other relevant impact, of specifying any particular area as critical habitat." The Act defines critical habitat under Section 3(5)(A) as:

> "(i) the specific areas within the geographical area occupied by the species, at the time it is listed..., on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and
>
> (ii) specific areas outside the geographical area occupied by the species at the time it is listed… upon a determination by the Secretary that such areas are essential for the conservation of the species."

A.1.4 DESCRIPTION AND ESTIMATE OF THE NUMBER OF SMALL ENTITIES TO WHICH THE RULE APPLIES

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 U.S. Small Business Administration (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

[93] 70 FR 37160.

[94] 72 FR 26722.

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.

The courts have held that the RFA/SBREFA 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.[95]

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.[96] The basis of EPA's RFA/SBREFA 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 regulations 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.

The Small Business Administration (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.[97] "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."[98]

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[95] 773 F. 2d 327 (D.C. Cir. 1985).

[96] 175 F. 3d 1027, 1044 (D.C. Cir. 1999).

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

[98] Ibid., pg. 21.

The regulatory mechanism through which critical habitat protections are enforced is section 7 of the ESA, 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 NOAA Fisheries through the proposed rule or by a delegation of impact from the directly regulated entity.

This IRFA focuses on small entities that may bear the incremental impacts of this rulemaking quantified in Chapter 2 of this economic analysis. Critical habitat may affect small entities as a result of changes in the project design, operation, or management of activities taking place within the study area as discussed in Chapter 2. Exhibit A-2 describes potentially affected small businesses by NAICS code, highlighting the relevant small business thresholds. Although businesses affected indirectly are considered, this analysis considers only those entities for which impact would not be measurably diluted.

Small entities also may participate in section 7 consultation as a third party (the primary consulting parties being NOAA Fisheries and the Federal action agency). It is therefore possible that the small entities may spend additional time considering critical habitat during section 7 consultation for the LCR coho and PS steelhead. These incremental administrative impacts to third parties are discussed in Section 3 of this analysis.

As described above and detailed in Section 3 of this report, incremental impacts associated with this rulemaking are expected to consist largely of administrative costs associated with section 7 consultations. Section 3 quantifies the administrative costs of section 7 consultation. In total, annualized incremental impacts are estimated at $474,000, some portion of which may be borne by small entities. These potential impacts are described in greater detail below.

- **Project Modifications.** Because of the high level of baseline protection in areas already occupied by the species, incremental impacts on conservation efforts due to designation as critical habitat are considered to be unlikely for most areas.
- **Administrative Costs.** Based on the number of past consultations, this analysis forecasts the number of additional consultations that may take place as a result of critical habitat (see Section 3). Based on this forecast, annual incremental consultation costs that may be borne by third parties are forecast at $209,000 in total (discounted at seven percent) for LCR coho and $298,000 in total (discounted at seven percent) for PS steelhead.[99]

[99] Note, this total is not shown in Chapter 5 because it reflects only the administrative costs to third parties, rather than the full cost of the consultation, including NOAA Fisheries and Federal agency time. In addition, it excludes annualized impacts associated with non-native species because costs associated with this mitigation are expected to be borne by Federal agencies.

Ideally, this analysis would directly identify the number of small entities that are located within the watersheds proposed in the rule. However, it is not possible to directly determine the number of firms in each industry sector within the critical habitat units because business activity data are maintained at the county level. Therefore, this analysis first identifies small entities in counties that overlap with watersheds proposed for critical habitat, then estimates the number of small entities within the study area using the following method:

- In order to estimate the number of businesses located within the study area for the proposed rule, this analysis assumes that business locations are distributed geographically in the same pattern that population is distributed. That is, more densely populated areas will contain proportionally more businesses than less populated areas.
- The number of people residing within the relevant watersheds was estimated by summing up the population of all census blocks that are contained within the relevant HUCs.[100, 101]
- The ratio of the population within the study area to the total population of the county is used to estimate the proportion of total and small business entities that may be affected by the proposed rule. Thus, this analysis uses population distribution as a proxy for the distribution of small entities in a county.

Exhibits A-3 and A-4 present the number of potentially affected small businesses by county and by watershed. Exhibit A-5 presents the percentage of small businesses estimated to fall within each watershed.

A.1.5 DESCRIPTION OF REPORTING AND RECORDKEEPING EFFORTS

The rule does not directly mandate "reporting" or "record keeping" within the meaning of the Paperwork Reduction Act (PRA).

A.1.6 IDENTIFICATION OF ALL RELEVANT FEDERAL RULES THAT MAY DUPLICATE, OVERLAP, OR CONFLICT WITH THE PROPOSED RULE

An IRFA must identify any duplicative, overlapping, and conflicting Federal rules. Rules are duplicative or overlapping if they are based on the same or similar reasons for the regulation, the same or similar regulatory goals, and if they regulate the same classes of industry. Rules are conflicting when they impose two conflicting regulatory requirements on the same classes of industry.

The protection provided by critical habitat designation to listed species and habitat may overlap other provisions of the ESA. The protections afforded to threatened and

[100] 2000 Census of Population and Housing.

[101] In case of partial containment of a census block, the ratio of the contained and total area of the block was used to estimate the block population residing within the hydrologic unit (watershed). The population that resides within each county included in the study area is generated by summing up the population estimates across all watersheds with which the county intersects.

endangered species and their habitat are described in section 7, 9, and 10 of the ESA. While the proposed critical habitat regulates activities that are Federally funded, authorized by a Federal agency, or carried out by a Federal agency, section 7 also requires Federal agencies to consult with NOAA Fisheries to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species. The incremental impacts forecast in this report and contemplated in this IRFA are expected to result from the critical habitat designation, however, and not other Federal rules.

A.1.7 A DESCRIPTION OF DESIGNATION ALTERNATIVES WHICH ACCOMPLISH THE OBJECTIVES AND WHICH MINIMIZE IMPACTS ON SMALL ENTITIES

In accordance with the requirements of the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act of 1996) this analysis considered various alternatives to the critical habitat designations for these DPSs. The alternative of not designating critical habitat for these DPSs was considered and rejected because such an approach does not meet the legal requirements of the ESA. We also examined and rejected an alternative in which all the potential critical habitat for these two DPSs is proposed for designation (i.e., no areas are excluded) because some of the areas considered to have a low conservation value also had relatively high economic impacts that might be mitigated by excluding those areas from designation. A third alternative we examined and rejected would exclude all habitat areas with a low or medium conservation value. While this alternative furthers the goal of reducing economic impacts, it is not sensitive to the fact that for both of these DPSs, eliminating all habitat areas with low and medium conservation value is likely to significantly impede conservation. Moreover, for some habitat areas the incremental economic benefit from excluding that area is relatively small. Therefore, after considering these alternatives in the context of the section 4(b)(2) process of weighing benefits of exclusion against benefits of designation, we determined that the current proposal for designating critical habitat (i.e., designating some but not all areas with low or medium conservation value) provides an appropriate balance of conservation and economic mitigation and that excluding the areas identified in this proposed rulemaking would not result in extinction of the DPSs.

EXHIBIT A-3. MAJOR RELEVANT ACTIVITIES AND A DESCRIPTION OF THE INDUSTRY SECTORS ENGAGED IN THOSE ACTIVITIES

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD
HYDROPOWER	**Electric Power Generation, Transmission and Distribution** This industry group comprises establishments primarily engaged in generating, transmitting, and/or distributing electric power. Establishments in this industry group may perform one or more of the following activities: (1) operate generation facilities that produce electric energy; (2) operate transmission systems that convey the electricity from the generation facility to the distribution system; and (3) operate distribution systems that convey electric power received from the generation facility or the transmission system to the final consumer.	221111 221112 221113 221119 221121 221122	4 million megawatts for the preceding year[1]
WATER SUPPLY	**Water Supply and Irrigation Systems** This industry comprises establishments primarily engaged in operating water treatment plants and/or operating water supply systems. The water supply system may include pumping stations, aqueducts, and/or distribution mains. The water may be used for drinking, irrigation, or other uses.	221310	$7.0 million average annual receipts
	Sewage Treatment Facilities This industry comprises establishments primarily engaged in operating sewer systems or sewage treatment facilities that collect, treat, and dispose of waste.	221320	

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD
DEVELOPMENT	**New Single-Family Housing Construction** This U.S. industry comprises general contractor establishments primarily responsible for the entire construction of new single-family housing, such as single-family detached houses and town houses or row houses where each housing unit (1) is separated from its neighbors by a ground-to-roof wall and (2) has no housing units constructed above or below. This industry includes general contractors responsible for the on-site assembly of modular and prefabricated houses. Single-family housing design-build firms and single-family construction management firms acting as general contractors are included in this industry.	236115	$33.5 million average annual receipts
	New Multifamily Housing Construction This U.S. industry comprises general contractor establishments responsible for the construction of new multifamily residential housing units (e.g., high-rise, garden, and town house apartments and condominiums where each unit is not separated from its neighbors by a ground-to-roof wall). Multifamily design-build firms and multifamily housing construction management firms acting as general contractors are included in this industry.	236116	
	New Housing Operative Builders This U.S. industry comprises operative builders primarily responsible for the entire construction of new houses and other residential buildings, single-family and multifamily, on their own account for sale. Operative builders are also known as speculative or merchant builders.	236117	
	Land Subdivision This industry comprises establishments primarily engaged in servicing land and subdividing real property into lots, for subsequent sale to builders. Servicing of land may include excavation work for the installation of roads and utility lines. Establishments that perform only the legal subdivision of land are not included in this industry.	237210	$7.0 million average annual receipts
TRANSPORTATION	**Highway, Street and Bridge Construction** This industry comprises establishments primarily engaged in the construction of highways (including elevated), streets, roads, airport runways, public sidewalks, or bridges. The work performed may include new work, reconstruction, rehabilitation, and repairs.	237310	$33.5 million average annual receipts
FEDERAL LANDS MANAGEMENT	**Logging** This industry comprises establishments primarily engaged in one or more of the following: (1) cutting timber; (2) cutting and transporting timber; and (3) producing wood chips in the field.	113310	500 employees

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD
	Timber Tract Operations This industry comprises establishments primarily engaged in the operation of timber tracts for the purpose of selling standing timber.	113110	$7.0 million average annual receipts
	Support Activities for Forestry This industry comprises establishments primarily engaged in performing particular support activities related to timber production, wood technology, forestry economics and marketing, and forest protection. These establishments may provide support activities for forestry, such as estimating timber, forest firefighting, forest pest control, and consulting on wood attributes and reforestation.	115310	
	Beef Cattle Ranching and Farming This U.S. industry comprises establishments primarily engaged in raising cattle (including cattle for dairy herd replacements).	112111	$750,000 average annual receipts
MINING	**Mining (except Oil and Gas)** Industries in the Mining (except Oil and Gas) subsector primarily engage in mining, mine site development, and beneficiating (i.e., preparing) metallic minerals and nonmetallic minerals, including coal. The term "mining" is used in the broad sense to include ore extraction, quarrying, and beneficiating (e.g., crushing, screening, washing, sizing, concentrating, and flotation), customarily done at the mine site.	212	500 employees
	Construction Sand and Gravel Mining This industry comprises establishments primarily engaged in one or more of the following: (1) operating commercial grade (i.e., construction) sand and gravel pits; (2) dredging for commercial grade sand and gravel; and (3) washing, screening, or otherwise preparing commercial grade sand and gravel.	212321	
UTILITIES	**Power and Communication Line and Related Structures Construction** This industry comprises establishments primarily engaged in the construction of power lines and towers, power plants, and radio, television, and telecommunications transmitting/receiving towers.	237130	$33.5 million average annual revenues
INSTREAM WORK	**Other Heavy and Civil Engineering Construction** This industry comprises establishments primarily engaged in heavy and engineering construction projects (excluding highway, street, bridge, and distribution line construction).	237990	$33.5 million average annual receipts

MAJOR RELEVANT ACTIVITY	DESCRIPTION OF INCLUDED INDUSTRY SECTORS	NAICS CODE	SBA SIZE STANDARD
	Oil and Gas Pipeline and Related Structures Construction This industry comprises establishments primarily engaged in the construction of oil and gas lines, mains, refineries, and storage tanks.	237120	$7.0 million average annual receipts
	Marinas This industry comprises establishments engaged in operating docking and/or storage facilities for pleasure craft owners, with or without one or more related activities, such as retailing fuel and marine supplies; and repairing, maintaining, or renting pleasure boats.	713930	$7.0 million average annual receipts
OTHER ACTIVITIES	**Oil and Gas Pipeline and Related Structures Construction** This industry comprises establishments primarily engaged in the construction of oil and gas lines, mains, refineries, and storage tanks.	237120	$7.0 million average annual receipts
	Water and Sewer Line and Related Structures Construction This industry comprises establishments primarily engaged in the construction of water and sewer lines, mains, pumping stations, treatment plants and storage tanks.	237110	$33.5 million average annual receipts

EXHIBIT A-4. ESTIMATED NUMBER OF REGULATED ENTITIES BY UNIT AND COUNTY: LCR COHO

HUC	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1707010506	OR	Hood River	20,411	2,862	14.0%	152	148	21	21
1707010507	OR	Multnomah	660,486	0	0.0%	1,895	1,851	0	0
1707010507	OR	Clackamas	338,391	0	0.0%	1,687	1,671	0	0
1707010507	OR	Hood River	20,411	162	0.8%	152	148	1	1
1707010508	OR	Hood River	20,411	13,270	65.0%	152	148	99	96
1707010508	WA	Klickitat	19,161	0	0.0%	137	134	0	0
1707010509	WA	Skamania	9,872	387	3.9%	46	45	2	2
1707010509	WA	Klickitat	19,161	2,714	14.2%	137	134	19	19
1707010510	WA	Skamania	9,872	520	5.3%	46	45	2	2
1707010510	WA	Klickitat	19,161	0	0.0%	137	134	0	0
1707010511	WA	Skamania	9,872	2,274	23.0%	46	45	11	10
1707010512	WA	Skamania	9,872	862	8.7%	46	45	4	4
1707010512	OR	Hood River	20,411	2,671	13.1%	152	148	20	19
1707010512	WA	Klickitat	19,161	4,130	21.6%	137	134	30	29
1707010513	OR	Multnomah	660,486	13	0.0%	1,895	1,851	0	0
1707010513	WA	Skamania	9,872	2,341	23.7%	46	45	11	11
1707010513	OR	Hood River	20,411	1,128	5.5%	152	148	8	8
1708000101	OR	Clackamas	338,391	1,345	0.4%	1,687	1,671	7	7
1708000101	OR	Hood River	20,411	0	0.0%	152	148	0	0
1708000102	OR	Clackamas	338,391	769	0.2%	1,687	1,671	4	4
1708000102	OR	Hood River	20,411	0	0.0%	152	148	0	0
1708000103	OR	Clackamas	338,391	381	0.1%	1,687	1,671	2	2
1708000103	OR	Hood River	20,411	0	0.0%	152	148	0	0

HUC	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1708000104	OR	Clackamas	338,391	7,181	2.1%	1,687	1,671	36	35
1708000105	OR	Multnomah	660,486	0	0.0%	1,895	1,851	0	0
1708000105	OR	Clackamas	338,391	260	0.1%	1,687	1,671	1	1
1708000105	OR	Hood River	20,411	0	0.0%	152	148	0	0
1708000106	OR	Multnomah	660,486	0	0.0%	1,895	1,851	0	0
1708000106	WA	Clark	345,238	35,509	10.3%	1,255	1,234	129	127
1708000106	WA	Skamania	9,872	1,745	17.7%	46	45	8	8
1708000107	OR	Multnomah	660,486	1,054	0.2%	1,895	1,851	3	3
1708000107	WA	Clark	345,238	6,213	1.8%	1,255	1,234	23	22
1708000107	WA	Skamania	9,872	1,730	17.5%	46	45	8	8
1708000107	OR	Hood River	20,411	0	0.0%	152	148	0	0
1708000108	OR	Multnomah	660,486	45,486	6.9%	1,895	1,851	131	127
1708000108	OR	Clackamas	338,391	759	0.2%	1,687	1,671	4	4
1708000108	WA	Clark	345,238	0	0.0%	1,255	1,234	0	0
1708000109	OR	Multnomah	660,486	0	0.0%	1,895	1,851	0	0
1708000109	OR	Columbia	43,560	0	0.0%	205	204	0	0
1708000109	WA	Clark	345,238	274,408	79.5%	1,255	1,234	998	981
1708000201	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000202	WA	Skamania	9,872	1	0.0%	46	45	0	0
1708000203	WA	Skamania	9,872	12	0.1%	46	45	0	0
1708000204	WA	Cowlitz	92,948	145	0.2%	301	292	0	0
1708000204	WA	Clark	345,238	0	0.0%	1,255	1,234	0	0
1708000204	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000205	WA	Cowlitz	92,948	0	0.0%	301	292	0	0

HUC	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1708000205	OR	Columbia	43,560	0	0.0%	205	204	0	0
1708000205	WA	Clark	345,238	23,308	6.8%	1,255	1,234	85	83
1708000205	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000206	WA	Cowlitz	92,948	5,823	6.3%	301	292	19	18
1708000206	WA	Clark	345,238	5,800	1.7%	1,255	1,234	21	21
1708000206	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000301	WA	Cowlitz	92,948	6,771	7.3%	301	292	22	21
1708000301	OR	Columbia	43,560	0	0.0%	205	204	0	0
1708000301	WA	Clark	345,238	0	0.0%	1,255	1,234	0	0
1708000301	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000302	WA	Cowlitz	92,948	0	0.0%	301	292	0	0
1708000302	OR	Columbia	43,560	14,887	34.2%	205	204	70	70
1708000303	OR	Columbia	43,560	2,604	6.0%	205	204	12	12
1708000304	WA	Cowlitz	92,948	42,805	46.1%	301	292	139	134
1708000304	WA	Wahkiakum	3,824	166	4.3%	24	24	1	1
1708000305	WA	Lewis	68,600	0	0.0%	344	340	0	0
1708000305	WA	Cowlitz	92,948	0	0.0%	301	292	0	0
1708000305	WA	Wahkiakum	3,824	2,033	53.2%	24	24	13	13
1708000306	OR	Clatsop	35,630	771	2.2%	225	222	5	5
1708000306	OR	Columbia	43,560	436	1.0%	205	204	2	2
1708000401	WA	Pierce	700,820	0	0.0%	2,059	2,028	0	0
1708000401	WA	Lewis	68,600	126	0.2%	344	340	1	1
1708000402	WA	Lewis	68,600	1,233	1.8%	344	340	6	6
1708000403	WA	Lewis	68,600	1,934	2.8%	344	340	10	10

HUC	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1708000404	WA	Lewis	68,600	0	0.0%	344	340	0	0
1708000404	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000405	WA	Lewis	68,600	92	0.1%	344	340	0	0
1708000405	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000501	WA	Lewis	68,600	2,347	3.4%	344	340	12	12
1708000502	WA	Lewis	68,600	3,918	5.7%	344	340	20	19
1708000503	WA	Lewis	68,600	6,315	9.2%	344	340	32	31
1708000503	WA	Cowlitz	92,948	71	0.1%	301	292	0	0
1708000504	WA	Cowlitz	92,948	3	0.0%	301	292	0	0
1708000504	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000505	WA	Lewis	68,600	0	0.0%	344	340	0	0
1708000505	WA	Cowlitz	92,948	2	0.0%	301	292	0	0
1708000505	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000506	WA	Cowlitz	92,948	226	0.2%	301	292	1	1
1708000506	WA	Skamania	9,872	0	0.0%	46	45	0	0
1708000507	WA	Lewis	68,600	6,317	9.2%	344	340	32	31
1708000507	WA	Cowlitz	92,948	6,648	7.2%	301	292	22	21
1708000508	WA	Cowlitz	92,948	30,454	32.8%	301	292	99	96
1708000601	OR	Clatsop	35,630	12,391	34.8%	225	222	78	77
1708000602	OR	Clatsop	35,630	9,984	28.0%	225	222	63	62
1708000603	WA	Pacific	20,984	1,076	5.1%	104	104	5	5
1708000603	WA	Lewis	68,600	0	0.0%	344	340	0	0
1708000603	WA	Wahkiakum	3,824	744	19.5%	24	24	5	5
1709000704	OR	Clackamas	338,391	77,787	23.0%	1,687	1,671	388	384

HUC	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1709000704	OR	Marion	284,834	1,547	0.5%	1,036	1,014	6	6
1709001101	OR	Clackamas	338,391	0	0.0%	1,687	1,671	0	0
1709001101	OR	Marion	284,834	6	0.0%	1,036	1,014	0	0
1709001102	OR	Clackamas	338,391	0	0.0%	1,687	1,671	0	0
1709001102	OR	Marion	284,834	0	0.0%	1,036	1,014	0	0
1709001103	OR	Clackamas	338,391	215	0.1%	1,687	1,671	1	1
1709001104	OR	Clackamas	338,391	156	0.0%	1,687	1,671	1	1
1709001105	OR	Clackamas	338,391	5,107	1.5%	1,687	1,671	25	25
1709001106	OR	Multnomah	660,486	0	0.0%	1,895	1,851	0	0
1709001106	OR	Clackamas	338,391	52,639	15.6%	1,687	1,671	262	260
1709001201	OR	Multnomah	660,486	157,033	23.8%	1,895	1,851	451	440
1709001201	OR	Clackamas	338,391	135,754	40.1%	1,687	1,671	677	670
1709001202	OR	Multnomah	660,486	2,532	0.4%	1,895	1,851	7	7
1709001202	OR	Columbia	43,560	21,765	50.0%	205	204	102	102
1709001202	WA	Clark	345,238	0	0.0%	1,255	1,234	0	0
1709001203	OR	Multnomah	660,486	418,838	63.4%	1,895	1,851	1,202	1,174
1709001203	OR	Clackamas	338,391	193	0.1%	1,687	1,671	1	1
1709001203	WA	Clark	345,238	0	0.0%	1,255	1,234	0	0
					TOTAL	**78,823**	**77,524**	**5,480**	**5,379**

EXHIBIT A-5. ESTIMATED NUMBER OF REGULATED ENTITIES BY UNIT AND COUNTY: PS STEELHEAD

PUG	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1711000201	Washington	Whatcom	166,814	84,436	50.6%	785	773	397	391
1711000201	Washington	Skagit	102,979	1,016	1.0%	441	429	4	4
1711000202	Washington	Whatcom	166,814	2,514	1.5%	785	773	12	12
1711000202	Washington	Skagit	102,979	34,051	33.1%	441	429	146	142
1711000204	Washington	Whatcom	166,814	15,112	9.1%	785	773	71	70
1711000401	Washington	Whatcom	166,814	143	0.1%	785	773	1	1
1711000402	Washington	Whatcom	166,814	138	0.1%	785	773	1	1
1711000403	Washington	Whatcom	166,814	1,136	0.7%	785	773	5	5
1711000403	Washington	Skagit	102,979	0	0.0%	441	429	0	0
1711000404	Washington	Whatcom	166,814	5,124	3.1%	785	773	24	24
1711000405	Washington	Whatcom	166,814	47,308	28.4%	785	773	223	219
1711000504	Washington	Whatcom	166,814	0	0.0%	785	773	0	0
1711000504	Washington	Skagit	102,979	0	0.0%	441	429	0	0
1711000505	Washington	Whatcom	166,814	37	0.0%	785	773	0	0
1711000505	Washington	Skagit	102,979	292	0.3%	441	429	1	1
1711000506	Washington	Skagit	102,979	142	0.1%	441	429	1	1
1711000507	Washington	Skagit	102,979	861	0.8%	441	429	4	4
1711000508	Washington	Whatcom	166,814	0	0.0%	785	773	0	0
1711000508	Washington	Skagit	102,979	126	0.1%	441	429	1	1
1711000601	Washington	Snohomish	606,024	9	0.0%	2,139	2,109	0	0
1711000602	Washington	Skagit	102,979	0	0.0%	441	429	0	0
1711000602	Washington	Snohomish	606,024	0	0.0%	2,139	2,109	0	0

PUG	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1711000603	Washington	Skagit	102,979	6	0.0%	441	429	0	0
1711000603	Washington	Snohomish	606,024	0	0.0%	2,139	2,109	0	0
1711000604	Washington	Skagit	102,979	425	0.4%	441	429	2	2
1711000604	Washington	Snohomish	606,024	1,649	0.3%	2,139	2,109	6	6
1711000701	Washington	Skagit	102,979	14,360	13.9%	441	429	61	60
1711000702	Washington	Skagit	102,979	48,180	46.8%	441	429	206	201
1711000702	Washington	Snohomish	606,024	1,650	0.3%	2,139	2,109	6	6
1711000801	Washington	Skagit	102,979	4	0.0%	441	429	0	0
1711000801	Washington	Snohomish	606,024	3,813	0.6%	2,139	2,109	13	13
1711000802	Washington	Snohomish	606,024	9,721	1.6%	2,139	2,109	34	34
1711000803	Washington	Skagit	102,979	171	0.2%	441	429	1	1
1711000803	Washington	Snohomish	606,024	27,125	4.5%	2,139	2,109	96	94
1711000901	Washington	Snohomish	606,024	0	0.0%	2,139	2,109	0	0
1711000901	Washington	King	1,737,034	85	0.0%	4,911	4,773	0	0
1711000902	Washington	Snohomish	606,024	520	0.1%	2,139	2,109	2	2
1711000902	Washington	King	1,737,034	555	0.0%	4,911	4,773	2	2
1711000903	Washington	Snohomish	606,024	8,206	1.4%	2,139	2,109	29	29
1711000903	Washington	King	1,737,034	0	0.0%	4,911	4,773	0	0
1711000904	Washington	Snohomish	606,024	2,385	0.4%	2,139	2,109	8	8
1711000905	Washington	Snohomish	606,024	23,456	3.9%	2,139	2,109	83	82
1711000905	Washington	King	1,737,034	0	0.0%	4,911	4,773	0	0
1711001003	Washington	King	1,737,034	18,052	1.0%	4,911	4,773	51	50
1711001004	Washington	Snohomish	606,024	2,986	0.5%	2,139	2,109	11	10
1711001004	Washington	King	1,737,034	17,425	1.0%	4,911	4,773	49	48

PUG	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1711001101	Washington	Snohomish	606,024	44,174	7.3%	2,139	2,109	156	154
1711001102	Washington	Snohomish	606,024	177,315	29.3%	2,139	2,109	626	617
1711001201	Washington	King	1,737,034	55,999	3.2%	4,911	4,773	158	154
1711001202	Washington	King	1,737,034	101,968	5.9%	4,911	4,773	288	280
1711001203	Washington	King	1,737,034	642,239	37.0%	4,911	4,773	1,816	1,765
1711001204	Washington	Snohomish	606,024	216,159	35.7%	2,139	2,109	763	752
1711001204	Washington	King	1,737,034	150,764	8.7%	4,911	4,773	426	414
1711001301	Washington	King	1,737,034	0	0.0%	4,911	4773	0	0
1711001302	Washington	King	1,737,034	2,128	0.1%	4,911	4,773	6	6
1711001303	Washington	King	1,737,034	369,225	21.3%	4,911	4,773	1,044	1,015
1711001401	Washington	King	1,737,034	0	0.0%	4,911	4,773	0	0
1711001401	Washington	Pierce	700,820	356	0.1%	2,059	2,028	1	1
1711001402	Washington	King	1,737,034	29,853	1.7%	4,911	4,773	84	82
1711001402	Washington	Pierce	700,820	29,285	4.2%	2,059	2,028	86	85
1711001403	Washington	Pierce	700,820	16,357	2.3%	2,059	2,028	48	47
1711001404	Washington	Pierce	700,820	10,959	1.6%	2,059	2,028	32	32
1711001405	Washington	King	1,737,034	67,034	3.9%	4,911	4,773	190	184
1711001405	Washington	Pierce	700,820	200,453	28.6%	2,059	2,028	589	580
1711001502	Washington	Pierce	700,820	6,581	0.9%	2,059	2,028	19	19
1711001502	Washington	Thurston	207,355	1,544	0.7%	792	771	6	6
1711001503	Washington	Pierce	700,820	32,633	4.7%	2,059	2,028	96	94
1711001503	Washington	Thurston	207,355	24,211	11.7%	792	771	92	90
1711001601	Washington	Thurston	207,355	2,579	1.2%	792	771	10	10
1711001601	Washington	Lewis	68,600	0	0.0%	344	340	0	0

PUG	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1711001602	Washington	Thurston	207,355	63,448	30.6%	792	771	242	236
1711001701	Washington	Jefferson	25,953	0	0.0%	159	159	0	0
1711001701	Washington	Mason	49,405	2,320	4.7%	254	250	12	12
1711001802	Washington	Jefferson	25,953	176	0.7%	159	159	1	1
1711001802	Washington	Mason	49,405	1,423	2.9%	254	250	7	7
1711001802	Washington	Mason	49,405	1,423	2.9%	254	250	7	7
1711001803	Washington	Jefferson	25,953	0	0.0%	159	159	0	0
1711001803	Washington	Mason	49,405	38	0.1%	254	250	0	0
1711001804	Washington	Jefferson	25,953	325	1.3%	159	159	2	2
1711001805	Washington	Jefferson	25,953	266	1.0%	159	159	2	2
1711001806	Washington	Clallam	64,525	0	0.0%	336	330	0	0
1711001806	Washington	Jefferson	25,953	505	1.9%	159	159	3	3
1711001807	Washington	Clallam	64,525	0	0.0%	336	330	0	0
1711001807	Washington	Jefferson	25,953	2,885	11.1%	159	159	18	18
1711001807	Washington	Jefferson	25,953	2,885	11.1%	159	159	18	18
1711001807	Washington	Jefferson	25,953	2,885	11.1%	159	159	18	18
1711001808	Washington	Kitsap	231,969	20,122	8.7%	770	755	67	65
1711001808	Washington	Mason	49,405	6,797	13.8%	254	250	35	34
1711001900	Washington	Mason	49,405	31,390	63.5%	254	250	161	159
1711001900	Washington	Thurston	207,355	3,809	1.8%	792	771	15	14
1711001901	Washington	Kitsap	231,969	172,672	74.4%	770	755	573	562
1711001901	Washington	Mason	49,405	487	1.0%	254	250	3	2
1711001901	Washington	Pierce	700,820	46,499	6.6%	2059	2028	137	135
1711001902	Washington	Thurston	207,355	73,444	35.4%	792	771	281	273

PUG	STATE	COUNTY	TOTAL COUNTY POPULATION (2000)	POPULATION WITHIN STUDY AREA	% COUNTY POPULATION WITHIN STUDY AREA	ALL REGULATED ENTITIES IN COUNTY	REGULATED SMALL ENTITIES IN COUNTY	ALL REGULATED ENTITIES IN STUDY AREA	REGULATED SMALL ENTITIES IN STUDY AREA
1711001902	Washington	Thurston	207,355	73,444	35.4%	792	771	281	273
1711001904	Washington	Snohomish	606,024	76,056	12.5%	2,139	2,109	268	265
1711001904	Washington	King	1,737,034	247,570	14.3%	4,911	4,773	700	680
1711001904	Washington	King	1,737,034	247,570	14.3%	4,911	4,773	700	680
1711001906	Washington	Pierce	700,820	342,424	48.9%	2,059	2,028	1,006	991
1711001908	Washington	Jefferson	25,953	16,657	64.2%	159	159	102	102
1711002001	Washington	Clallam	64,525	968	1.5%	336	330	5	5
1711002001	Washington	Jefferson	25,953	4,381	16.9%	159	159	27	27
1711002002	Washington	Clallam	64,525	4,083	6.3%	336	330	21	21
1711002002	Washington	Jefferson	25,953	0	0.0%	159	159	0	0
1711002003	Washington	Clallam	64,525	15,477	24.0%	336	330	81	79
1711002003	Washington	Jefferson	25,953	0	0.0%	159	159	0	0
1711002004	Washington	Clallam	64,525	29,940	46.4%	336	330	156	153
1711002007	Washington	Clallam	64,525	1,330	2.1%	336	330	7	7
1711002007	Washington	Jefferson	25,953	0	0.0%	159	159	0	0
					TOTAL	**174,465**	**170,599**	**13,043**	**12,762**

EXHIBIT A-6. ESTIMATED NUMBER OF REGULATED ENTITIES THAT ARE SMALL (BY UNIT AND ACTIVITY TYPE): LCR COHO

HUC	WATER SUPPLY	DEVELOPMENT	INSTREAM WORK	UTILITIES	FEDERAL LANDS MANAGEMENT	TRANSPORTATION	MINING	OTHER ACTIVITIES
1707010506	0%	94%	100%	100%	100%	88%	100%	-
1707010507	67%	98%	100%	62%	92%	89%	97%	77%
1707010508	0%	96%	99%	100%	100%	88%	100%	100%
1707010509	-	99%	97%	-	100%	94%	100%	100%
1707010510	-	99%	97%	-	100%	94%	100%	100%
1707010511	-	100%	96%	-	100%	100%	-	100%
1707010512	0%	97%	98%	100%	100%	92%	100%	100%
1707010513	50%	98%	98%	63%	96%	90%	100%	82%
1708000101	50%	97%	100%	80%	95%	91%	95%	90%
1708000102	50%	97%	100%	80%	95%	91%	95%	90%
1708000103	50%	97%	100%	80%	95%	91%	95%	90%
1708000104	100%	100%	100%	60%	90%	95%	91%	90%
1708000105	67%	98%	100%	62%	92%	89%	97%	77%
1708000106	100%	98%	98%	53%	94%	92%	100%	84%
1708000107	67%	97%	99%	68%	96%	91%	100%	84%
1708000108	100%	98%	99%	55%	91%	90%	97%	80%
1708000109	100%	98%	99%	53%	94%	87%	100%	84%
1708000201	-	100%	96%	-	100%	100%	-	100%
1708000202	-	100%	96%	-	100%	100%	-	100%
1708000203	-	100%	96%	-	100%	100%	-	100%
1708000204	100%	97%	98%	90%	99%	92%	100%	91%
1708000205	100%	98%	99%	90%	99%	91%	100%	94%
1708000206	100%	97%	98%	90%	99%	92%	100%	91%
1708000301	100%	98%	99%	90%	99%	91%	100%	94%

HUC	WATER SUPPLY	DEVELOPMENT	INSTREAM WORK	UTILITIES	FEDERAL LANDS MANAGEMENT	TRANSPORTATION	MINING	OTHER ACTIVITIES
1708000302	-	98%	99%	100%	100%	85%	100%	94%
1708000303	-	100%	100%	-	100%	88%	100%	100%
1708000304	-	98%	99%	100%	100%	83%	100%	88%
1708000305	-	98%	100%	100%	100%	92%	100%	89%
1708000306	-	98%	100%	-	100%	88%	100%	100%
1708000401	25%	98%	100%	91%	97%	99%	96%	91%
1708000402	-	98%	100%	100%	100%	100%	100%	91%
1708000403	-	98%	100%	100%	100%	100%	100%	91%
1708000404	-	99%	98%	100%	100%	100%	100%	95%
1708000405	-	99%	98%	100%	100%	100%	100%	95%
1708000501	-	98%	100%	100%	100%	100%	100%	91%
1708000502	-	98%	100%	100%	100%	100%	100%	91%
1708000503	-	97%	99%	100%	100%	92%	100%	89%
1708000504	-	98%	97%	100%	100%	92%	100%	94%
1708000505	-	98%	98%	100%	100%	94%	100%	93%
1708000506	-	98%	97%	100%	100%	92%	100%	94%
1708000507	-	97%	99%	100%	100%	92%	100%	89%
1708000508	-	97%	99%	100%	100%	83%	100%	88%
1708000601	-	97%	99%	-	100%	89%	100%	100%
1708000602	-	97%	99%	-	100%	89%	100%	100%
1708000603	-	99%	100%	100%	100%	100%	100%	91%
1709000704	100%	98%	100%	72%	95%	91%	95%	88%
1709001101	100%	98%	100%	72%	95%	91%	95%	88%
1709001102	100%	98%	100%	72%	95%	91%	95%	88%
1709001103	100%	100%	100%	60%	90%	95%	91%	90%

HUC	WATER SUPPLY	DEVELOPMENT	INSTREAM WORK	UTILITIES	FEDERAL LANDS MANAGEMENT	TRANSPORTATION	MINING	OTHER ACTIVITIES
1709001104	100%	100%	100%	60%	90%	95%	91%	90%
1709001105	100%	100%	100%	60%	90%	95%	91%	90%
1709001106	100%	100%	99%	43%	89%	89%	95%	77%
1709001201	100%	100%	99%	43%	89%	89%	95%	77%
1709001202	100%	98%	99%	53%	94%	87%	100%	84%
1709001203	100%	98%	99%	55%	91%	90%	97%	80%
Total Average	**76.7%**	**98.3%**	**98.9%**	**81.2%**	**97.2%**	**92.5%**	**98.3%**	**90.8%**

Notes:
1. Data on small entities performing Hydropower related activity were not readily available.
2. Dashes indicate that no regulated communities lie within the HUC.

EXHIBIT A7. PROPORTION OF REGULATED ENTITIES THAT ARE CLASSIFIED AS SMALL (BY UNIT AND ACTIVITY TYPE): PS STEELHEAD

HUC	WATER SUPPLY	DEVELOPMENT	INSTREAM WORK	UTILITIES	FEDERAL LANDS MANAGEMENT	TRANSPORTATION	MINING	OTHER ACTIVITIES
1711000201	25.0%	99.7%	94.6%	100.0%	100.0%	88.5%	88.3%	83.5%
1711000202	25.0%	99.7%	94.6%	100.0%	100.0%	88.5%	88.3%	83.5%
1711000204	0.0%	99.7%	92.6%	100.0%	100.0%	95.2%	90.9%	90.0%
1711000401	0.0%	99.7%	92.6%	100.0%	100.0%	95.2%	90.9%	90.0%
1711000402	0.0%	99.7%	92.6%	100.0%	100.0%	95.2%	90.9%	90.0%
1711000403	25.0%	99.7%	94.6%	100.0%	100.0%	88.5%	88.3%	83.5%
1711000404	0.0%	99.7%	92.6%	100.0%	100.0%	95.2%	90.9%	90.0%
1711000405	0.0%	99.7%	92.6%	100.0%	100.0%	95.2%	90.9%	90.0%
1711000504	25.0%	99.7%	94.6%	100.0%	100.0%	88.5%	88.3%	83.5%
1711000505	25.0%	99.7%	94.6%	100.0%	100.0%	88.5%	88.3%	83.5%
1711000506	50.0%	99.7%	96.6%	100.0%	100.0%	81.8%	85.7%	76.9%
1711000507	50.0%	99.7%	96.6%	100.0%	100.0%	81.8%	85.7%	76.9%
1711000508	25.0%	99.7%	94.6%	100.0%	100.0%	88.5%	88.3%	83.5%
1711000601	60.0%	99.5%	95.2%	100.0%	98.7%	90.7%	90.0%	88.9%
1711000602	55.0%	99.6%	95.9%	100.0%	99.4%	86.2%	87.9%	82.9%
1711000603	55.0%	99.6%	95.9%	100.0%	99.4%	86.2%	87.9%	82.9%
1711000604	55.0%	99.6%	95.9%	100.0%	99.4%	86.2%	87.9%	82.9%
1711000701	50.0%	99.7%	96.6%	100.0%	100.0%	81.8%	85.7%	76.9%
1711000702	55.0%	99.6%	95.9%	100.0%	99.4%	86.2%	87.9%	82.9%
1711000801	55.0%	99.6%	95.9%	100.0%	99.4%	86.2%	87.9%	82.9%
1711000802	60.0%	99.5%	95.2%	100.0%	98.7%	90.7%	90.0%	88.9%
1711000803	55.0%	99.6%	95.9%	100.0%	99.4%	86.2%	87.9%	82.9%
1711000901	55.0%	99.1%	94.5%	86.1%	97.1%	89.5%	88.4%	82.1%

HUC	WATER SUPPLY	DEVELOPMENT	INSTREAM WORK	UTILITIES	FEDERAL LANDS MANAGEMENT	TRANSPORTATION	MINING	OTHER ACTIVITIES
1711000902	55.0%	99.1%	94.5%	86.1%	97.1%	89.5%	88.4%	82.1%
1711000903	55.0%	99.1%	94.5%	86.1%	97.1%	89.5%	88.4%	82.1%
1711000904	60.0%	99.5%	95.2%	100.0%	98.7%	90.7%	90.0%	88.9%
1711000905	55.0%	99.1%	94.5%	86.1%	97.1%	89.5%	88.4%	82.1%
1711001003	50.0%	98.6%	93.7%	72.2%	95.6%	88.3%	86.9%	75.3%
1711001004	55.0%	99.1%	94.5%	86.1%	97.1%	89.5%	88.4%	82.1%
1711001101	60.0%	99.5%	95.2%	100.0%	98.7%	90.7%	90.0%	88.9%
1711001102	60.0%	99.5%	95.2%	100.0%	98.7%	90.7%	90.0%	88.9%
1711001201	50.0%	98.6%	93.7%	72.2%	95.6%	88.3%	86.9%	75.3%
1711001202	50.0%	98.6%	93.7%	72.2%	95.6%	88.3%	86.9%	75.3%
1711001203	50.0%	98.6%	93.7%	72.2%	95.6%	88.3%	86.9%	75.3%
1711001204	55.0%	99.1%	94.5%	86.1%	97.1%	89.5%	88.4%	82.1%
1711001301	50.0%	98.6%	93.7%	72.2%	95.6%	88.3%	86.9%	75.3%
1711001302	50.0%	98.6%	93.7%	72.2%	95.6%	88.3%	86.9%	75.3%
1711001303	50.0%	98.6%	93.7%	72.2%	95.6%	88.3%	86.9%	75.3%
1711001401	58.3%	99.1%	95.9%	84.7%	94.9%	85.5%	90.6%	88.5%
1711001402	37.5%	99.0%	93.8%	77.0%	97.1%	93.3%	89.3%	82.7%
1711001403	25.0%	99.4%	94.0%	81.8%	98.7%	98.3%	91.7%	90.2%
1711001404	25.0%	99.4%	94.0%	81.8%	98.7%	98.3%	91.7%	90.2%
1711001405	37.5%	99.0%	93.8%	77.0%	97.1%	93.3%	89.3%	82.7%
1711001502	12.5%	99.3%	97.0%	78.4%	95.7%	94.6%	90.0%	86.4%
1711001503	12.5%	99.3%	97.0%	78.4%	95.7%	94.6%	90.0%	86.4%
1711001601	0.0%	99.6%	100.0%	87.5%	95.3%	95.5%	94.1%	86.8%
1711001602	0.0%	99.2%	100.0%	75.0%	92.6%	90.9%	88.2%	82.6%

HUC	WATER SUPPLY	DEVELOPMENT	INSTREAM WORK	UTILITIES	FEDERAL LANDS MANAGEMENT	TRANSPORTATION	MINING	OTHER ACTIVITIES
1711001701	100.0%	100.0%	100.0%	100.0%	98.5%	100.0%	95.5%	90.9%
1711001802	100.0%	100.0%	100.0%	100.0%	98.0%	100.0%	93.9%	87.9%
1711001803	100.0%	100.0%	100.0%	100.0%	98.5%	100.0%	95.5%	90.9%
1711001804	-	100.0%	100.0%	-	100.0%	100.0%	100.0%	100.0%
1711001805	-	100.0%	100.0%	-	100.0%	100.0%	100.0%	100.0%
1711001806	-	100.0%	92.9%	-	99.2%	92.9%	100.0%	95.0%
1711001807	-	100.0%	96.4%	-	99.6%	96.4%	100.0%	97.5%
1711001808	50.0%	99.8%	94.4%	100.0%	98.5%	94.6%	87.8%	85.6%
1711001900	50.0%	99.6%	100.0%	87.5%	94.8%	95.5%	89.6%	82.2%
1711001901	41.7%	99.6%	94.3%	93.9%	98.6%	95.9%	89.1%	87.2%
1711001902	0.0%	99.2%	100.0%	75.0%	92.6%	90.9%	88.2%	82.6%
1711001904	53.3%	98.9%	94.2%	81.5%	96.6%	89.1%	87.9%	79.8%
1711001906	25.0%	99.4%	94.0%	81.8%	98.7%	98.3%	91.7%	90.2%
1711001908	-	100.0%	100.0%	-	100.0%	100.0%	100.0%	100.0%
1711002001	-	100.0%	92.9%	-	99.2%	92.9%	100.0%	95.0%
1711002002	-	100.0%	92.9%	-	99.2%	92.9%	100.0%	95.0%
1711002003	-	100.0%	92.9%	-	99.2%	92.9%	100.0%	95.0%
1711002004	-	100.0%	85.7%	-	98.3%	85.7%	100.0%	90.0%
1711002007	-	100.0%	92.9%	-	99.2%	92.9%	100.0%	95.0%
Total Average	**41.8%**	**99.5%**	**95.2%**	**90.4%**	**98.1%**	**91.4%**	**90.8%**	**85.7%**

Notes:
1. Data on small entities performing Hydropower related activity was not readily available.
2. Dashes indicate that no regulated communities lie within the HUC.

A.2 POTENTIAL IMPACTS TO THE ENERGY INDUSTRY

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."[49]

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 kilowatt 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.[50]

As none of these criteria is relevant to this analysis, energy-related impacts associated with conservation activities within the areas assessed as critical habitat for LCR coho and PS steelhead are not expected.

[49] 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.

[50] Ibid.

APPENDIX B | LAWS AND REGULATIONS THAT MAY PROVIDE BASELINE PROTECTION FOR THE LOWER COLUMBIA RIVER COHO SALMON AND PUGET SOUND STEELHEAD

CLEAN WATER ACT (33 U.S.C. 1251 ET SEQ. 1987)

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States. It gives the Environmental Protection Agency (EPA) the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA also continued requirements to set water quality standards for all contaminants in surface waters.

Pursuant to Section 404 of the CWA, it is unlawful for any person to dredge, dispose of dredge material, or discharge a pollutant from a point source into navigable waters, unless a permit is obtained from the U.S. Army Corps of Engineers (USACE). As part of pollution prevention activities, the USACE may limit activities in waterways through the Section 404 permitting process, independent of LCR coho and PS steelhead concerns. These reductions in pollution may benefit LCR coho and PS steelhead critical habitat.

Pursuant to Section 402 of the CWA and under the National Pollutant Discharge Elimination System (NPDES) program, EPA sets pollutant-specific limits on the point source discharges for major industries and provides permits to individual point sources that apply to these limits. Under the water quality standards program, EPA, in collaboration with States, establishes water quality criteria to regulate ambient concentrations of pollutants in surface waters.

Under section 401 of the CWA, all applicants for a Federal license or permit to conduct activity that may result in discharge to navigable waters are required to submit a State certification to the licensing or permitting agency. For example, the 1995 Bay-Delta Water Quality Control Plan and Water Right Decision 1641 incorporates objectives such as providing water for fish and wildlife, including anadromous fish. Costs associated with this and other existing water control plans are considered baseline protection in this analysis.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT REAUTHORIZATION ACT 2006

This law signed by the President in January, 2007, amends the older Magnuson-Stevens Fishery Conservation and Management Act (as amended through 1996) that included provision for the description of essential fish habitat in fishery management plans and consideration of actions to ensure the conservation and enhancement of habitat. The newer Magnuson-Stevens Reauthorization Act mandates the use of annual catch limits and accountability measures to end overfishing, provides for widespread market-based

fishery management through limited access programs, and calls for increased international cooperation. This act may provide protection to LCR coho and PS steelhead by imposition of measures to prevent overfishing of salmon species in marine waters, reducing bycatch, and encouraging market-based conservation strategies.

NATIONAL FOREST MANAGEMENT ACT (16 USC §§ 1600-1614 1976)

This Act requires assessment of forest lands, development of a management program based on multiple-use, sustained-yield principles, and implementation of a resource management plan for each unit of the National Forest System. The Act may provide protection to LCR coho and PS steelhead within National Forests, primarily through its authorization of the Northwest Forest Plan (NWFP) and PACFISH. NWFP and PACFISH provide numerous protections for anadromous fish species related to Federal lands management activities (the NWFP and PACFISH are discussed in more detail below).

NORTHWEST FOREST PLAN (1994)

The Northwest Forest Plan is a Federal interagency cooperative program that is intended to provide a coordinated management direction for the lands administered by the U.S. Forest Service (USFS) and Bureau of Land Management (BLM). The Northwest Forest Plan defines Standards and Guidelines (S&Gs) for forest use throughout the 24 million acres of Federal lands in its planning area (the range of the Northern spotted owl, Western Oregon, Western Washington, and Northwestern California). Specifically, the NWFP provides S&Gs for management of timber, roads, grazing, recreation, minerals, fire/fuels management, fish and wildlife management, general land management, riparian area management, watershed and habitat restoration, and research activities on USFS and BLM lands. To accomplish its goals, the NWFP defines seven land allocation categories, including “matrix lands,” areas where the majority of timber is to be taken, and Riparian Reserves and Key Watersheds, where distances from rivers are set within which many activities are restricted. The Aquatic Conservation Strategy (ACS) component of the plan specifically provides for fishery habitat, protection, and restoration. One of the most important substantive protective measures implemented through the Plan are riparian reserves. These are buffered strips of land that, depending on stream class and type of watershed, range from 300 feet on perennial streams to 50 feet on ephemeral streams.

PACFISH/INFISH (INTERIM STRATEGIES FOR MANAGING ANADROMOUS FISH-PRODUCING WATERSHEDS) (1995)

The USFS and the BLM developed an ecosystem-based, aquatic habitat and riparian-area management strategy (commonly referred to as "PACFISH/INFISH") that addresses Federally managed, anadromous fish watersheds in eastern Oregon, Washington, Idaho, and portions of California (areas outside the Northwest Forest Plan). The strategy was developed in response to significant declines in naturally reproducing salmonid stocks, including steelhead, and widespread degradation of anadromous fish habitat east of the Cascade mountain range. Like the Northwest Forest Plan, PACFISH/INFISH is an attempt to provide a consistent approach for maintaining and restoring aquatic and

riparian habitat conditions which, in turn, are expected to promote the sustained natural production of anadromous fish. Like the NWFP, PACFISH/INFISH provides guidelines for timber, roads, grazing, recreation, minerals, fire/fuels management, lands, riparian area, watershed and habitat restoration, and fisheries and wildlife restoration. Standards and guidelines under PACFISH are nearly identical to those in the NWFP. The USFS and BLM continue to operate under the 1998 PACFISH/INFISH Biological Opinions (PIBO) in 2011.

FEDERAL POWER ACT (16 U.S.C. § 800 1920, AS AMENDED)

The Federal Power Act (FPA) was promulgated to establish the Federal Energy Regulatory Commission (FERC) to oversee non-Federal hydropower generation. The FERC is an independent Federal agency governing approximately 2,500 licenses for non-Federal hydropower facilities, has responsibility for national energy regulatory issues.

This Act may provide protection to LCR coho and PS steelhead habitat from hydropower activities. Section 10(j) of the Federal Power Act (FPA) was promulgated to ensure that FERC considers both power and non-power resources during the licensing process. More specifically, section 18 of the FPA states that FERC shall require the construction, operation, and maintenance by a licensee at its own expense of a fishway if prescribed by the Secretaries of Interior (delegated to the Fish and Wildlife Service) and Commerce (NOAA).

FISH AND WILDLIFE COORDINATION ACT (16 U.S.C.§§ 661-666 1934, AS AMENDED)

This law provides that, whenever the waters or channels of a body of water are modified by a department or agency of the U.S. government, the department or agency must first consult with the U.S. Fish and Wildlife Service and with the head of the agency exercising administration over the wildlife resources of the State where modification will occur with a view to the conservation of wildlife resources.

The purpose of this Act is to ensure that fish and wildlife resources are equally considered with other resources during the planning of water resources development projects by authorizing FWS to provide assistance to Federal and State agencies in protecting game species and studying the effects of pollution on wildlife. This Act may offer protection to LCR coho and PS steelhead habitat by requiring consultation concerning the species with FWS for all instream activities with a Federal nexus.

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

The Rivers and Harbors Act (RHA) places Federal improvements of rivers, harbors and other waterways under the jurisdiction of the Department of the Army, USACE and requires that all improvements include due regard for wildlife conservation.

This Act may provide protection to the LCR coho and PS steelhead critical habitat related to in-stream construction activities. Under sections 9 and 10 of the RHA, the USACE is authorized to regulate the construction of any structure or work within navigable waterways. This includes, for example, bridges and docks.

NATIONAL ENVIRONMENTAL POLICY ACT (42 USC §§ 4321-4345 1969)

The National Environmental Policy Act (NEPA) requires that all Federal agencies conduct a detailed environmental impact statement (EIS) in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment.

The NEPA process may provide protection to LCR coho and PS steelhead critical habitat for activities that have Federal involvement, if alternatives are considered and selected that are less harmful to the LCR coho and PS steelhead critical habitat than other alternatives.

WILDERNESS ACT (16 USC §§ 1131-1136 1964)

The Wilderness Act established the National Wilderness Preservation System. With a few exceptions, no commercial enterprise or permanent road is allowed within a wilderness area. Temporary roads, motor vehicles, motorized equipment, landing of aircraft, structures and installations are only allowed for administration of the area. Measures may be taken to control fire, insects and disease. Prospecting for mineral or other resources, if carried on in a manner compatible with the preservation of wilderness, is allowed.

The Wilderness Act may offer protections to West Coast salmon and steelhead by limiting land disturbing activities in Wilderness Areas in National Forests. Human activity in wilderness areas is likely to be greatly reduced when compared to non-wilderness areas, which is likely to benefit the LCR coho and PS steelhead and their habitat.

THE SIKES ACT IMPROVEMENTS ACT (16 USC §670 1997)

The Sikes Act Improvement Act (SAIA) requires military installations to prepare and implement an Integrated Natural Resources Management Plan (INRMP). The purpose of the INRMP is to provide for:

- The conservation and rehabilitation of natural resources on military installations;
- The sustainable multipurpose use of the resources, which shall include hunting, fishing, trapping, and nonconsumptive uses; and
- Subject to safety requirements and military security, public access to military installations to facilitate the use of the resources.

INRMPs developed in accordance with SAIA may provide protection to LCR coho and PS steelhead critical habitat on military lands.

MITCHELL ACT

NOAA Fisheries administers the Mitchell Act passed by Congress in 1938 (and amended in 1946) for the purpose of providing for the conservation of the fisheries resources of the Columbia River. The Columbia River Fisheries Development Program (CRFDP) was established to coordinate activities authorized under the Mitchell Act. As such, the CRFDP is a cooperative effort between NOAA Fisheries, the FWS, and the fisheries

agencies of Oregon, Washington, and Idaho. In addition to funding the operation and maintenance of artificial propagation facilities, the CRFDP funds activities relating to stream improvements, such as fishway development, irrigation diversion screening, and stream clearing. Under the CRFDP, over 850 screens have been constructed to prevent fish mortality at irrigation diversions. The CRFDP currently provides the majority of funding for multi-agency, cooperative, accelerated programs of screen construction, rehabilitation, and replacement. The program's goal was to have all irrigation diversions which impact anadromous salmonids in the Columbia River basin screened by 2002.

COLUMBIA RIVER FISH MANAGEMENT PLAN

In keeping with an existing court order, the states of Oregon and Washington must work with tribal and Federal authorities to rebuild weak runs and achieve fair sharing of the available salmon harvest between Native American and non-Native American fisheries. Major points of the plan include the commitment to rebuild upriver spring and summer chinook salmon runs to levels that would restore fisheries, management of harvests to insure that wild salmon runs continue to rebuild, and management of inriver and ocean fisheries to ensure fair sharing between Native American and non-Native American. The plan also provides for a flexible and dynamic management approach, as well as for the creation of a basin-wide Production Advisory Committee to coordinate joint development of subbasin plans that will address habitat protection, fish propagation, and harvest.

NORTHWEST POWER PLANNING COUNCIL - STRATEGY FOR SALMON

The Northwest Power Planning Council was established by Congress to develop a plan to protect and enhance the Columbia basin's fish and wildlife and a regional power plan that provides a reliable, low-cost electricity supply. The goal of the plan is to double salmon production in the Columbia River basin and to accomplish this with no appreciable risk to the biological diversity of fish populations. The plan calls for improved passage and screening at Columbia and Snake River dams, predator reductions in the Columbia and Snake Rivers, downstream barging of juvenile salmonids past Columbia River dams, improvement of harvest and hatchery practices to protect wild salmonids, and protection and restoration of fish habitat within the Columbia River basin. The plan also calls for the evaluation of adverse economic effects of salmon recovery and identification of sources of funds to mitigate the adverse effects.

OTHER STATUTES AND REGULATIONS THAT APPLY TO LAND USE ACTIVITIES

While the following statutes and regulations may apply to lands and waters that fall within LCR coho and PS steelhead habitat areas, they are unlikely to provide significant baseline protections and are not considered in the analysis.

- *Fish and Wildlife Conservation Act (16 USC §§ 2901-2911 1980, as amended)* – The FWCA encourages States to develop, revise and implement, in consultation with Federal, State, local and regional agencies, a plan for the conservation of fish and wildlife, particularly species indigenous to the State.

- *Fisheries Restoration and Irrigation Mitigation Act (16 USC § 777 2000)* - The FRIMA directs the Secretary of Interior, in consultation with the heads of other appropriate agencies, to develop and implement projects to mitigate impacts to fisheries resulting from the construction and operation of water diversions by local government entities (including soil and water conservation districts) in the Pacific Ocean drainage area.
- *Water Resources Development Act (33 USC §§ 2201-2330 1986, as amended)* - WRDA authorizes the construction or study of USACE projects and outlines environmental assessment and mitigation requirements.
- *Anadromous Fish Conservation Act (16 USC §§ 757 et seq. 1965)* - The AFCA authorizes the Secretary of the Interior to enter into agreements with States and other non-Federal interests to conserve, develop and enhance the anadromous fish resources of the U.S.
- *Wild and Scenic Rivers Act (16 USC §§ 1271-1287 2001)* - WSRA authorizes the creation of the National Wilderness Preservation System and prohibits extractive activities on specific lands.
- *North American Wetland Conservation Act (16 USC § 4401 et seq. 1989)* - NAWCA encourages partnerships among public agencies and other interests to protect, enhance, restore and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife.
- *Federal Land Policy and Management Act (43 USC §§ 1701-1782 1976)* – This Act requires the Bureau of Land Management to employ a land planning process that is based on multiple use and sustained yield principles.
- *Executive Order 11988 and 11990 (1977)* – These Executive Orders require, to the extent possible, prevention of long and short term adverse impacts associated with the occupancy and modification of floodplains and prevention of direct or indirect support of floodplain development wherever there is a practicable alternative.
- *Coastal Zone Management Act (16 USC §§ 1451 et seq. 1972)* - CZMA establishes an extensive Federal grant program to encourage coastal States to develop and implement coastal zone management programs to provide for protection of natural resources, including wetlands, flood plains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat.

APPENDIX C | SUPPLEMENTAL ADMINISTRATIVE COST INFORMATION

This appendix provides additional detail regarding the calculation of administrative costs by watershed and by activity. Specifically, it presents the number of consultation actions estimated annually (formal, informal, technical assistance, programmatic) by watershed and activity. Consultations classified as “implementation” and “conference” opinions are assumed to be formal for the purposes of this analysis.

EXHIBIT C-1. ANNUAL NUMBER OF FORECAST FORMAL SECTION 7 CONSULTATIONS BY WATERSHED AND ACTIVITY: LCR COHO

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1707010506	-	-	0.2	-	0.6	-	0.3	-	-	1.1
1707010507	-	-	0.1	-	-	-	-	-	-	0.1
1707010508	-	-	0.1	-	-	-	0.1	-	-	0.2
1707010509	-	-	-	-	-	-	-	-	-	-
1707010510	-	-	0.1	-	0.1	-	-	-	0.2	0.4
1707010511	-	-	0.1	-	0.5	-	0.2	-	-	0.8
1707010512	-	-	0.1	-	-	-	-	-	-	0.1
1707010513	0.2	-	0.1	-	0.1	-	-	-	-	0.4
1708000101	-	-	-	-	0.1	-	-	-	-	0.1
1708000102	0.1	-	-	-	0.3	-	-	-	-	0.4
1708000103	-	-	-	-	0.2	-	-	-	-	0.2
1708000104	-	-	0.2	-	0.3	-	0.2	-	-	0.7
1708000105	-	-	-	-	-	-	0.1	-	-	0.1
1708000106	-	-	-	-	0.1	0.1	-	-	-	0.2
1708000107	-	0.1	0.7	-	0.7	-	-	-	0.1	1.6
1708000108	-	-	0.1	-	0.2	-	0.1	-	0.1	0.5
1708000109	0.1	-	0.3	-	0.6	-	-	-	0.2	1.2
1708000201	-	-	-	-	-	-	-	-	-	-
1708000202	-	0.1	-	-	-	-	-	-	-	0.1
1708000203	-	0.1	-	-	-	-	-	-	-	0.1
1708000204	-	-	-	-	-	-	-	-	-	-
1708000205	-	-	0.1	0.1	0.1	-	-	-	0.1	0.4
1708000206	-	-	-	-	-	-	-	-	-	-
1708000301	-	-	0.2	-	-	-	-	-	-	0.2
1708000302	-	-	0.3	-	0.1	-	0.1	-	-	0.5

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1708000303	-	-	0.2	-	0.3	-	-	-	-	0.5
1708000304	-	-	0.1	-	-	-	-	-	-	0.1
1708000305	-	-	0.4	-	-	-	0.1	-	-	0.5
1708000306	-	-	0.2	-	0.7	-	-	-	0.1	1
1708000401	-	-	-	-	-	-	-	-	-	-
1708000402	-	-	-	-	-	-	-	-	-	-
1708000403	-	-	-	-	-	-	-	-	-	-
1708000404	-	-	-	-	-	-	-	-	-	-
1708000405	-	0.1	0.2	-	-	-	-	-	-	0.3
1708000501	-	-	-	-	-	-	0.1	0.1	-	0.2
1708000502	-	-	-	-	-	-	-	-	-	-
1708000503	-	-	-	-	-	-	-	-	-	-
1708000504	-	-	-	-	-	-	-	-	-	-
1708000505	-	-	-	-	-	-	-	-	-	-
1708000506	-	-	-	-	-	-	-	-	0.1	0.1
1708000507	-	-	-	-	0.1	-	0.1	-	-	0.2
1708000508	-	-	-	-	0.3	-	-	-	-	0.3
1708000601	-	-	0.5	-	0.5	-	-	-	0.1	1.1
1708000602	0.1	-	0.2	-	0.1	-	0.1	-	0.1	0.6
1708000603	-	-	0.2	-	0.1	-	0.1	-	0.4	0.8
1709000704	-	-	0.4	-	0.4	-	0.2	0.1	0.1	1.2
1709001101	-	-	-	-	-	-	-	-	-	-
1709001102	-	-	-	-	0.1	-	-	-	-	0.1
1709001103	-	-	-	-	0.1	-	-	-	-	0.1
1709001104	-	-	-	-	-	-	-	-	-	-
1709001105	-	-	-	-	-	-	0.1	-	-	0.1
1709001106	-	-	0.5	-	1.3	-	-	-	-	1.8

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1709001201	-	-	0.8	-	1.2	-	0.1	-	0.1	2.2
1709001202	0.1	-	0.5	-	0.5	-	0.2	-	0.3	1.6
1709001203	0.2	-	2.8	-	2.4	-	0.3	-	0.3	6
Lower Columbia Corridor (Sandy/Washougal to Ocean)	-	-	0.7	0.2	0.3	-	-	-	0.2	1.4
Total	**0.8**	**0.3**	**10.4**	**0.3**	**11.8**	**0.1**	**2.5**	**0.2**	**2.8**	**29.2**

Note: Includes consultations classified as "emergency," "conference" and "implementation".

EXHIBIT C-2. ANNUAL NUMBER OF FORECAST INFORMAL SECTION 7 CONSULTATIONS BY WATERSHED AND ACTIVITY: LCR COHO

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1707010506	-	-	0.1	-	-	0.05	-	-	-	0.15
1707010507	-	-	-	-	-	0.05	-	-	-	0.05
1707010508	0.1	-	-	-	0.1	-	0.1	-	-	0.3
1707010509	-	-	-	-	-	-	-	-	-	-
1707010510	-	-	-	-	-	-	-	-	0.1	0.1
1707010511	-	-	-	-	0.1	-	0.05	-	-	0.15
1707010512	-	-	-	-	-	-	-	-	-	-
1707010513	-	-	0.1	-	-	-	0.05	-	-	0.15
1708000101	-	-	-	-	-	-	-	-	-	-
1708000102	-	-	-	-	0.1	-	-	-	-	0.1
1708000103	-	-	-	-	-	-	-	-	-	-
1708000104	-	-	-	-	-	-	0.2	-	-	0.2
1708000105	-	-	-	-	-	-	-	-	-	-
1708000106	-	-	0.4	-	0.05	-	-	-	0.1	0.55
1708000107	0.3	-	0.3	-	0.25	-	-	-	-	0.85
1708000108	0.1	-	-	-	-	-	-	-	-	0.1
1708000109	0.1	-	0.9	-	0.7	-	-	-	-	1.7
1708000201	-	-	-	-	-	-	-	-	0.05	0.05
1708000202	-	-	-	-	-	-	-	-	0.05	0.05
1708000203	-	-	-	-	-	-	-	-	-	-
1708000204	0.1	-	-	-	-	-	-	-	-	0.1
1708000205	-	0.1	-	-	0.55	-	0.1	-	-	0.75
1708000206	-	-	-	-	-	-	0.2	-	0.2	0.4
1708000301	0.2	-	0.2	-	-	0.1	0.1	-	-	0.6
1708000302	-	-	0.5	-	0.1	-	-	-	-	0.6

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1708000303	-	-	-	-	-	-	-	-	-	-
1708000304	-	-	0.3	-	0.9	-	0.1	-	-	1.3
1708000305	-	-	0.5	-	0.15	-	0.1	-	-	0.75
1708000306	-	-	-	-	-	0.1	-	-	-	0.1
1708000401	-	-	-	-	-	-	-	-	-	-
1708000402	-	0.05	-	-	-	-	-	-	0.1	0.15
1708000403	-	0.35	-	-	0.2	-	-	-	-	0.55
1708000404	-	0.1	-	-	-	-	-	-	-	0.1
1708000405	-	-	-	-	-	-	-	-	0.2	0.2
1708000501	-	-	0.1	-	0.1	-	-	-	-	0.2
1708000502	-	-	0.1	-	0.2	-	-	-	-	0.3
1708000503	-	-	-	-	-	-	-	-	-	-
1708000504	-	-	-	-	-	-	-	-	-	-
1708000505	-	-	-	-	-	-	-	-	-	-
1708000506	-	-	-	-	-	-	-	-	-	-
1708000507	0.1	-	0.1	-	0.2	-	-	-	0.2	0.6
1708000508	-	-	0.1	-	0.5	-	0.1	-	-	0.7
1708000601	-	-	0.1	-	0.2	-	-	-	-	0.3
1708000602	-	-	-	-	0.3	-	-	-	-	0.3
1708000603	0.1	-	0.2	-	0.4	-	0.2	-	-	0.9
1709000704	0.1	-	0.2	-	0.3	-	-	-	-	0.6
1709001101	-	0.1	-	-	-	-	-	-	-	0.1
1709001102	-	-	-	-	-	-	-	-	-	-
1709001103	-	-	-	-	-	-	-	-	-	-
1709001104	-	-	-	-	-	-	-	-	-	-
1709001105	-	-	-	-	-	-	0.1	-	-	0.1
1709001106	-	-	0.1	-	0.3	-	0.1	-	0.1	0.6

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1709001201	0.1	-	-	-	0.5	0.1	0.2	-	-	0.9
1709001202	-	-	0.3	-	-	-	0.1	-	0.1	0.5
1709001203	-	0.1	0.6	-	1.1	-	0.2	-	-	2
Lower Columbia Corridor (Sandy/Washougal to Ocean)	-	-	1.9	-	-	-	0.1	-	-	1.9
Total	**1.3**	**0.8**	**7**	**-**	**7.3**	**0.4**	**2.1**	**-**	**1.2**	**20.1**

EXHIBIT C-3. ANNUAL NUMBER OF FORECAST TECHNICAL ASSISTANCE SECTION 7 CONSULTATIONS BY WATERSHED AND ACTIVITY: LCR COHO

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1707010506	-	-	-	-	0.3	-	0.1	-	0.04	0.44
1707010507	-	0.01	-	-	-	-	-	-	0.04	0.06
1707010508	0.1	-	-	-	-	-	-	-	0.04	0.14
1707010509	-	-	-	-	-	-	-	-	0.2	0.2
1707010510	-	-	0.1	-	-	-	-	-	-	0.1
1707010511	-	-	0.1	-	-	-	-	-	0.01	0.11
1707010512	-	-	-	-	-	-	-	-	-	-
1707010513	-	-	-	-	-	-	-	-	0.01	0.01
1708000101	0.1	-	-	-	0.1	-	-	-	0.03	0.23
1708000102	-	-	-	-	0.1	-	-	-	0.03	0.13
1708000103	-	-	-	-	-	-	-	-	0.03	0.03
1708000104	-	-	-	-	-	-	0.1	-	0.03	0.13
1708000105	-	-	-	-	-	-	-	-	0.03	0.03
1708000106	-	-	-	-	-	-	0.1	-	0.03	0.13
1708000107	0.1	-	-	-	-	-	-	-	0.01	0.11
1708000108	-	0.01	-	-	-	-	-	-	0.03	0.04
1708000109	-	-	0.1	-	0.05	-	-	-	0.13	0.28
1708000201	-	-	-	-	-	-	-	-	-	-
1708000202	-	-	-	-	-	-	-	-	-	-
1708000203	-	-	-	-	-	-	-	-	-	-
1708000204	-	-	-	-	-	-	-	-	-	-
1708000205	-	-	-	-	-	-	-	-	0.03	0.03
1708000206	-	-	-	-	-	-	-	-	-	-
1708000301	-	-	-	-	-	-	-	-	-	-
1708000302	-	-	0.1	-	0.1	-	-	-	-	0.2

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1708000303	-	-	-	-	-	-	-	-	-	-
1708000304	-	-	-	-	-	-	-	-	-	-
1708000305	-	-	0.1	-	-	-	-	-	-	0.1
1708000306	-	-	-	-	-	-	-	-	-	-
1708000401	-	-	-	-	-	-	-	-	-	-
1708000402	-	-	-	-	-	-	-	-	-	-
1708000403	-	-	-	-	-	-	-	-	-	-
1708000404	-	-	-	-	-	-	-	-	-	-
1708000405	-	-	-	-	-	-	-	-	-	-
1708000501	-	-	-	-	-	-	-	-	-	-
1708000502	-	-	-	-	-	-	-	-	-	-
1708000503	-	-	-	-	-	-	-	-	-	-
1708000504	-	-	-	-	-	-	-	-	-	-
1708000505	-	-	-	-	-	-	-	-	-	-
1708000506	-	-	-	-	-	-	-	-	-	-
1708000507	-	-	-	-	-	-	-	-	-	-
1708000508	-	-	0.1	-	-	-	-	-	-	0.1
1708000601	-	-	0.4	-	0.2	-	-	-	-	0.6
1708000602	-	-	-	-	-	-	-	-	-	-
1708000603	-	-	0.1	-	-	-	-	-	-	0.1
1709000704	-	-	-	-	-	-	-	-	-	-
1709001101	-	0.01	-	-	-	-	-	-	0.01	0.02
1709001102	-	0.01	-	-	-	-	-	-	0.01	0.02
1709001103	-	0.01	-	-	-	-	-	-	0.01	0.02
1709001104	-	0.01	-	-	-	-	-	-	0.01	0.02
1709001105	-	-	-	-	-	-	-	-	0.01	0.01
1709001106	-	0.01	-	-	-	-	-	-	0.01	0.02

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1709001201	-	-	0.1	-	0.1	-	0.05	-	0.05	0.3
1709001202	-	0.1	-	-	0.1	-	-	-	-	0.2
1709001203	-	-	0.05	-	0.3	-	0.05	-	0.1	0.5
Lower Columbia Corridor (Sandy/Washougal to Ocean)	-	-	0.35	-	-	-	-	-	-	0.35
Total	**0.3**	**0.2**	**1.6**	**-**	**1.35**	**-**	**0.4**	**-**	**0.95**	**4.8**

EXHIBIT C-4. ANNUAL NUMBER OF FORECAST PROGRAMMATIC SECTION 7 CONSULTATIONS BY WATERSHED AND ACTIVITY: LCR COHO

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1707010506	-	0.02	-	-	-	-	-	-	-	0.02
1707010507	-	0.08	-	-	-	-	-	-	-	0.08
1707010508	-	-	-	-	-	-	-	-	-	-
1707010509	-	-	-	-	-	-	-	-	-	-
1707010510	-	-	-	-	-	-	-	-	-	-
1707010511	-	0.02	-	-	-	-	-	-	-	0.02
1707010512	-	-	-	-	-	-	-	-	-	-
1707010513	-	0.02	-	-	-	-	-	-	-	0.02
1708000101	-	0.02	-	-	-	-	-	-	-	0.02
1708000102	-	0.02	-	-	-	-	-	-	-	0.02
1708000103	-	0.02	-	-	-	-	-	-	-	0.02
1708000104	-	0.02	-	-	-	-	-	-	-	0.02
1708000105	-	0.02	-	-	-	-	-	-	-	0.02
1708000106	-	-	-	-	-	-	-	-	-	-
1708000107	-	0.02	-	-	-	-	-	-	-	0.02
1708000108	-	0.08	-	-	-	-	-	-	-	0.08
1708000109	-	-	-	-	-	-	-	-	-	-
1708000201	-	-	-	-	-	-	-	-	-	-
1708000202	-	-	-	-	-	-	-	-	-	-
1708000203	-	-	-	-	-	-	-	-	-	-
1708000204	-	-	-	-	-	-	-	-	-	-
1708000205	-	-	-	-	-	-	-	-	-	-
1708000206	-	-	-	-	-	-	-	-	-	-
1708000301	-	-	-	-	-	-	-	-	-	-
1708000302	-	-	-	-	-	-	-	-	-	-

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1708000303	-	0.02	-	-	-	-	-	-	-	0.02
1708000304	-	-	-	-	-	-	-	-	-	-
1708000305	-	-	-	-	-	-	-	-	-	-
1708000306	-	-	-	-	-	-	-	-	-	-
1708000401	-	-	-	-	-	-	-	-	-	-
1708000402	-	-	-	-	-	-	-	-	-	-
1708000403	-	-	-	-	-	-	-	-	-	-
1708000404	-	-	-	-	-	-	-	-	-	-
1708000405	-	-	-	-	-	-	-	-	-	-
1708000501	-	-	-	-	-	-	-	-	-	-
1708000502	-	-	-	-	-	-	-	-	-	-
1708000503	-	-	-	-	-	-	-	-	-	-
1708000504	-	-	-	-	-	-	-	-	-	-
1708000505	-	-	-	-	-	-	-	-	-	-
1708000506	-	-	-	-	-	-	-	-	-	-
1708000507	-	-	-	-	-	-	-	-	-	-
1708000508	-	-	-	-	-	-	-	-	-	-
1708000601	-	-	-	-	-	-	-	-	-	-
1708000602	-	-	-	-	-	-	-	-	-	-
1708000603	-	-	-	-	-	-	-	-	-	-
1709000704	-	0.02	-	-	-	-	-	-	-	0.02
1709001101	-	0.08	-	-	-	-	-	-	-	0.08
1709001102	-	0.08	-	-	-	-	-	-	-	0.08
1709001103	-	0.08	-	-	-	-	-	-	-	0.08
1709001104	-	0.08	-	-	-	-	-	-	-	0.08
1709001105	-	0.02	-	-	-	-	-	-	-	0.02
1709001106	-	0.08	-	-	-	-	-	-	-	0.08

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1709001201	-	0.02	-	-	-	-	-	-	-	0.02
1709001202	-	0.02	-	-	-	-	-	-	-	0.02
1709001203	-	0.02	-	-	-	-	-	-	-	0.02
Lower Columbia Corridor (Sandy/Washougal to Ocean)	-	-	-	-	-	-	-	-	-	-
Total	**-**	**0.8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.8**

EXHIBIT C-5. FORECAST ANNUAL COSTS BY WATERSHED AND ACTIVITY: LCR COHO

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPOR-TATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1707010506	-	$267	$708	-	$6,820	$127	$5,420	-	$101	$13,500
1707010507	-	$1,160	$260	-	-	$127	-	-	$101	$1,650
1707010508	$170	-	$260	-	$814	-	$2,550	-	$92.90	$3,890
1707010509	-	-	-	-	-	-	-	-	$392	$392
1707010510	-	-	$699	-	$1,040	-	-	-	$919	$2,660
1707010511	-	$267	$699	-	$5,670	-	$3,920	-	$62.20	$10,600
1707010512	-	-	$260	-	-	-	-	-	$22.40	$282
1707010513	$2,670	$267	$448	-	$693	-	$394	-	$62.20	$4,540
1708000101	$9.24	$267	-	-	$1,230	-	-	-	$190	$1,700
1708000102	$1,340	$267	-	-	$3,610	-	-	-	$70.50	$5,280
1708000103	-	$267	-	-	$2,080	-	-	-	$70.50	$2,420
1708000104	-	$267	$520	-	$2,600	-	$5,240	-	$190	$8,820
1708000105	-	$267	-	-	-	-	$1,760	-	$70.50	$2,100
1708000106	-	-	$752	-	$1,450	$900	$139	-	$241	$3,480
1708000107	$493	$1,100	$2,380	-	$8,970	-	-	-	$421	$13,400
1708000108	$161	$1,160	$260	-	$2,080	-	$1,760	-	$549	$5,980
1708000109	$1,500	-	$2,910	-	$11,500	-	-	-	$963	$16,900
1708000201	-	-	-	-	-	-	-	-	$112	$112
1708000202	-	$418	-	-	-	-	-	-	$112	$530
1708000203	-	$418	-	-	-	-	-	-	-	$418
1708000204	$161	-	-	-	-	-	-	-	-	$161
1708000205	-	$207	$260	$5,230	$5,000	-	$789	-	$443	$11,900
1708000206	-	-	-	-	-	-	$1,580	-	$359	$1,940
1708000301	$322	-	$895	-	-	$254	$789	-	-	$2,260
1708000302	-	-	$2,160	-	$2,050	-	$1,760	-	$89.60	$6,060

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPOR-TATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1708000303	-	$267	$520	-	$3,120	-	-	-	$98	$4,010
1708000304	-	-	$824	-	$7,330	-	$789	-	-	$8,940
1708000305	-	-	$2,420	-	$1,220	-	$2,550	-	-	$6,190
1708000306	-	-	$520	-	$7,280	$254	-	-	$179	$8,230
1708000401	-	-	-	-	-	-	-	-	$22.40	$22.40
1708000402	-	$103	-	-	-	-	-	-	$202	$305
1708000403	-	$723	-	-	$1,630	-	-	-	$22.40	$2,370
1708000404	-	$207	-	-	-	-	-	-	$22.40	$229
1708000405	-	$836	$520	-	-	-	-	-	$381	$1,740
1708000501	-	-	$188	-	$814	-	$1,760	$1,720	-	$4,480
1708000502	-	-	$188	-	$1,630	-	-	-	-	$1,820
1708000503	-	-	-	-	-	-	-	-	-	-
1708000504	-	-	-	-	-	-	-	-	$22.40	$22.40
1708000505	-	-	-	-	-	-	-	-	$22.40	$22.40
1708000506	-	-	-	-	-	-	-	-	$359	$359
1708000507	$161	-	$188	-	$2,670	-	$1,760	-	$359	$5,140
1708000508	-	-	$627	-	$7,190	-	$789	-	-	$8,610
1708000601	-	-	$3,240	-	$7,220	-	-	-	$359	$10,800
1708000602	$1,340	-	$520	-	$3,480	-	$1,760	-	$359	$7,460
1708000603	$161	-	$1,330	-	$4,300	-	$3,340	-	$1,430	$10,600
1709000704	$161	$267	$1,420	-	$6,080	-	$3,520	$1,720	$367	$13,500
1709001101	-	$1,370	-	-	-	-	-	-	$39.70	$1,410
1709001102	-	$1,160	-	-	$520	-	-	-	$39.70	$1,720
1709001103	-	$1,160	-	-	$520	-	-	-	$39.70	$1,720
1709001104	-	$1,160	-	-	-	-	-	-	$39.70	$1,200
1709001105	-	$267	-	-	-	-	$2,550	-	$18.70	$2,840
1709001106	-	$1,160	$1,490	-	$15,400	-	$789	-	$219	$19,100

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPOR-TATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1709001201	$161	$267	$2,520	-	$16,200	$254	$3,410	-	$459	$23,300
1709001202	$1,340	$682	$1,860	-	$5,400	-	$4,310	-	$1,260	$14,900
1709001203	$2,670	$473	$8,620	-	$34,000	-	$6,930	-	$1,270	$54,000
Lower Columbia Corridor (Sandy/Washougal to Ocean)	-	-	$6,740	$10,500	$3,120	-	$789	-	$717	$21,800
Total	**$12,800**	**$16,700**	**$47,200**	**$15,700**	**$185,000**	**$1,910**	**$61,200**	**$3,430**	**$13,900**	**$358,000**

EXHIBIT C-6. FORECAST ANNUAL SECTION 7 CONSULATIONS BY WATERSHED AND TYPE OF CONSULTATION: LCR COHO

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL	ANNUALIZED COSTS
1707010506	1.106	0.150	0.018	0.443	1.717	$13,500
1707010507	0.106	0.050	0.075	0.058	0.289	$1,650
1707010508	0.206	0.300	-	0.139	0.645	$3,890
1707010509	0.0W06	-	-	0.200	0.206	$392
1707010510	0.406	0.100	-	0.100	0.606	$2,660
1707010511	0.779	0.150	0.018	0.110	1.057	$10,600
1707010512	0.106	-	-	-	0.106	$282
1707010513	0.379	0.150	0.018	0.010	0.557	$4,540
1708000101	0.139	-	0.018	0.227	0.384	$1,700
1708000102	0.356	0.100	0.018	0.127	0.601	$5,280
1708000103	0.206	-	0.018	0.027	0.251	$2,420
1708000104	0.689	0.200	0.018	0.127	1.034	$8,820
1708000105	0.106	-	0.018	0.027	0.151	$2,100
1708000106	0.200	0.550	-	0.133	0.883	$3,480
1708000107	1.579	0.850	0.018	0.110	2.557	$13,400
1708000108	0.539	0.100	0.075	0.041	0.756	$5,980
1708000109	1.150	1.700	-	0.283	3.133	$16,900
1708000201	0.0W06	0.050	-	-	0.056	$112
1708000202	0.056	0.050	-	-	0.106	$530
1708000203	0.050	-	-	-	0.050	$418
1708000204	-	0.100	-	-	0.100	$161
1708000205	0.356	0.750	-	0.033	1.140	$11,900
1708000206	-	0.400	-	-	0.400	$1,940
1708000301	0.200	0.600	-	-	0.800	$2,260

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL	ANNUALIZED COSTS
1708000302	0.525	0.600	-	0.200	1.325	$6,060
1708000303	0.525	-	0.018	0.0W05	0.548	$4,010
1708000304	0.100	1.300	-	-	1.400	$8,940
1708000305	0.500	0.750	-	0.100	1.350	$6,190
1708000306	0.950	0.100	-	-	1.050	$8,230
1708000401	0.0W06	-	-	-	0.0W06	$22
1708000402	0.0W06	0.150	-	-	0.156	$305
1708000403	0.0W06	0.550	-	-	0.556	$2,370
1708000404	0.0W06	0.100	-	-	0.106	$229
1708000405	0.306	0.200	-	-	0.506	$1,740
1708000501	0.200	0.200	-	-	0.400	$4,480
1708000502	-	0.300	-	-	0.300	$1,820
1708000503	-	-	-	-	-	$0
1708000504	0.0W06	-	-	-	0.0W06	$22
1708000505	0.0W06	-	-	-	0.0W06	$22
1708000506	0.100	-	-	-	0.100	$359
1708000507	0.200	0.600	-	-	0.800	$5,140
1708000508	0.300	0.700	-	0.100	1.100	$8,610
1708000601	1.100	0.300	-	0.600	2.000	$10,800
1708000602	0.600	0.300	-	-	0.900	$7,460
1708000603	0.800	0.900	-	0.100	1.800	$10,600
1709000704	1.150	0.600	0.018	0.0W05	1.773	$13,500
1709001101	0.0W06	0.100	0.075	0.024	0.206	$1,410
1709001102	0.056	-	0.075	0.024	0.156	$1,720
1709001103	0.056	-	0.075	0.024	0.156	$1,720
1709001104	0.0W06	-	0.075	0.024	0.106	$1,200
1709001105	0.100	0.100	0.018	0.010	0.228	$2,840

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL	ANNUALIZED COSTS
1709001106	1.756	0.600	0.075	0.024	2.456	$19,100
1709001201	2.150	0.900	0.018	0.305	3.373	$23,300
1709001202	1.600	0.500	0.018	0.205	2.323	$14,900
1709001203	5.950	2.000	0.018	0.505	8.473	$54,000
Lower Columbia Corridor (Sandy/Washougal to Ocean)	1.400	1.900	-	0.350	3.650	$21,800
Total	**29.2**	**20.1**	**0.8**	**4.8**	**54.9**	**$358,000**

Note: "Formal" consultations include consultations classified as "formal," "emergency," "conference" and "implementation".

EXHIBIT C-7. PAST ANNUAL SECTION 7 CONSULATIONS BY TYPE OF CONSULTATION, 2001-2010: LCR COHO

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL	ANNUAL AVERAGE
Formal	7	9	16	25	15	15	27	34	14	7	169	16.9
Informal	6	3	7	31	20	17	20	35	33	29	201	20.1
Technical Assistance	1	4	3	14	9	6	7	1	3	-	48	4.8
Programmatic	-	-	-	-	-	-	6	2	-	-	8	0.8
Conference	-	-	-	-	-	-	-	-	-	-	-	0.0
Implementation	-	-	1	3	7	18	20	16	38	20	123	12.3
Total	**14**	**16**	**27**	**73**	**51**	**56**	**80**	**88**	**88**	**56**	**549**	**54.9**

EXHIBIT C-8. PAST ANNUAL SECTION 7 CONSULATIONS BY ACTIVITY, 2001-2010: LCR COHO

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL	ANNUAL AVERAGE
Hydropower	-	-	-	1.00	-	-	1.00	-	-	-	2.00	0.20
Water supply	1.00	-	2.00	12.00	4.00	5.00	5.00	9.00	8.00	4.00	50.00	5.00
Federal lands	1.00	-	-	1.00	4.00	2.00	7.00	4.00	1.00	1.00	21.00	2.10
Development	-	1.00	-	5.00	6.00	2.00	1.00	6.00	2.00	1.00	24.00	2.40
Instream work	-	3.00	10.00	23.00	19.00	17.00	32.00	42.00	23.00	21.00	190.00	19.00
Mining	-	-	1.00	-	-	2.00	-	-	-	-	3.00	0.30
Transportation	11.00	10.00	11.00	24.50	15.00	21.00	22.00	23.00	43.00	24.00	204.50	20.45
Utilities	-	-	-	1.00	1.00	-	-	2.00	-	1.00	5.00	0.50
Other	1.00	2.00	3.00	5.50	2.00	7.00	12.00	2.00	11.00	4.00	49.50	4.95

EXHIBIT C-9. ANNUAL NUMBER OF FORECAST FORMAL SECTION 7 CONSULTATIONS BY WATERSHED AND ACTIVITY: PS STEELHEAD

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000201	-	-	-	-	-	-	-	-	-	-
1711000202	-	-	0.40	-	0.10	-	-	-	-	0.50
1711000204	-	-	-	-	-	-	-	-	-	-
1711000401	-	-	-	-	-	-	-	-	-	-
1711000402	-	-	-	-	0.10	-	-	-	-	0.10
1711000403	-	-	0.30	-	0.10	-	-	-	-	0.40
1711000404	-	-	-	-	0.10	-	-	-	-	0.10
1711000405	-	-	0.20	-	-	-	-	-	-	0.20
1711000504	-	-	-	-	-	-	-	-	-	-
1711000505	-	-	-	-	-	-	-	-	-	-
1711000506	-	-	-	-	-	-	-	-	-	-
1711000507	-	-	-	-	-	-	-	-	-	-
1711000508	-	-	-	-	-	-	-	-	-	-
1711000601	-	-	-	-	0.10	-	-	-	-	0.10
1711000602	-	-	-	-	-	-	-	-	-	-
1711000603	0.10	-	-	-	-	-	-	-	-	0.10
1711000604	-	-	0.10	-	0.40	-	-	-	-	0.50
1711000701	-	-	-	-	-	-	0.10	-	-	0.10
1711000702	-	-	0.30	-	-	-	0.20	0.10	-	0.60
1711000801	-	-	0.20	-	0.10	-	0.10	-	-	0.40
1711000802	-	-	0.10	-	0.10	-	-	-	-	0.20
1711000803	-	-	0.20	-	-	-	-	-	-	0.20
1711000901	-	-	-	-	-	-	-	-	-	-
1711000902	-	-	0.30	-	-	-	-	-	-	0.30
1711000903	-	-	-	-	-	-	-	-	-	-

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000904	-	-	-	-	-	-	-	-	-	-
1711000905	-	-	-	-	0.20	-	-	-	-	0.20
1711001003	-	-	-	-	-	-	-	-	-	-
1711001004	-	-	-	-	0.30	-	0.10	-	-	0.40
1711001101	-	-	-	-	-	-	-	-	-	-
1711001102	-	-	0.30	-	0.10	-	-	-	0.10	0.50
1711001201	-	-	-	-	0.15	-	-	-	-	0.15
1711001202	-	-	-	-	-	-	-	-	-	-
1711001203	-	-	1.50	-	0.30	-	-	-	-	1.80
1711001204	-	-	0.10	-	0.25	-	0.10	-	-	0.45
1711001301	-	-	-	-	-	-	-	-	-	-
1711001302	-	-	-	-	-	-	-	-	-	-
1711001303	-	-	0.30	-	0.20	-	-	-	0.10	0.60
1711001401	-	-	-	-	-	-	-	-	-	-
1711001402	-	-	-	-	0.10	-	-	-	-	0.10
1711001403	-	-	-	-	-	-	-	-	-	-
1711001404	-	-	-	-	0.10	-	-	-	-	0.10
1711001405	-	-	0.30	-	0.20	-	-	-	-	0.50
1711001502	-	-	-	-	0.20	-	-	-	-	0.20
1711001503	-	-	-	-	-	-	-	-	-	-
1711001601	-	-	-	-	-	-	-	-	-	-
1711001602	-	-	-	-	-	-	-	-	-	-
1711001701	-	-	-	-	-	-	-	-	-	-
1711001802	-	-	-	-	-	-	-	-	0.01	0.01
1711001803	-	-	-	-	-	-	-	-	-	-
1711001804	-	-	-	-	-	-	-	-	0.01	0.01
1711001805	-	-	-	-	0.20	-	-	-	0.01	0.21

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711001806	-	-	0.10	-	-	-	-	-	0.06	0.16
1711001807	-	-	-	-	-	-	-	-	0.06	0.06
1711001808	-	-	-	-	-	-	-	-	0.05	0.05
1711001900	-	-	-	-	-	-	-	-	-	-
1711001901	-	-	-	-	0.10	-	-	-	-	0.10
1711001902	-	-	-	-	-	-	-	-	-	-
1711001904	0.10	-	0.10	-	0.10	-	-	-	-	0.30
1711001906	-	-	-	-	-	-	-	-	-	-
1711001908	-	-	-	-	-	-	-	-	0.06	0.06
1711002001	-	-	-	-	-	-	-	-	0.01	0.01
1711002002	-	-	-	-	-	-	-	-	-	-
1711002003	-	-	-	-	-	-	0.10	-	0.01	0.11
1711002004	-	-	-	-	-	-	-	-	0.01	0.01
1711002007	-	-	0.20	-	-	-	-	-	0.01	0.21
Total	**0.18**	**0.0**	**4.55**	**0.0**	**3.27**	**0.0**	**0.64**	**0.09**	**0.44**	**9.17**

Note: Includes consultations classified as “emergency,” “conference” and “implementation”.

EXHIBIT C-10. ANNUAL NUMBER OF FORECAST INFORMAL SECTION 7 CONSULTATIONS BY WATERSHED AND ACTIVITY: PS STEELHEAD

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000201	0.2	-	2.44	-	0.2	0.1	-	-	-	2.94
1711000202	0.4	-	2.49	-	0.3	-	0.5	-	0.2	3.89
1711000204	0.1	-	1.6	-	0.4	0.2	0.1	-	0.02	2.42
1711000401	-	-	0.1	-	-	-	-	-	-	0.1
1711000402	-	-	-	-	0.03	-	-	-	-	0.03
1711000403	-	-	0.4	-	0.23	-	-	-	-	0.63
1711000404	-	0.1	-	-	0.2	-	-	-	0.1	0.4
1711000405	-	-	0.7	-	0.53	0.1	-	-	-	1.33
1711000504	-	-	-	-	-	-	-	-	0.1	0.1
1711000505	-	-	-	-	-	-	-	-	-	-
1711000506	-	-	-	-	-	-	-	-	-	-
1711000507	-	-	0.2	-	-	-	-	-	-	0.2
1711000508	-	-	0.1	-	-	-	-	-	-	0.1
1711000601	-	-	-	-	0.1	-	-	-	-	0.1
1711000602	-	-	-	-	-	-	-	-	-	-
1711000603	0.1	-	0.1	-	0.2	-	-	-	-	0.4
1711000604	-	-	-	-	0.5	-	-	-	0.1	0.6
1711000701	-	-	0.7	-	0.2	0.1	-	-	0.1	1.1
1711000702	0.1	-	1.4	-	0.1	-	0.1	-	0.1	1.8
1711000801	0.2	-	0.3	-	0.2	-	-	-	-	0.7
1711000802	0.1	-	-	-	0.3	-	0.05	-	-	0.45
1711000803	-	-	0.2	-	0.4	-	0.2	-	0.2	1
1711000901	-	-	-	-	-	-	-	-	-	-
1711000902	-	-	0.1	0.1	-	-	0.1	-	-	0.3
1711000903	0.1	-	0.1	-	0.3	-	-	-	-	0.5

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000904	-	-	-	-	0.1	-	-	-	-	0.1
1711000905	-	-	0.3	-	0.25	-	-	0.1	-	0.65
1711001003	-	-	-	-	0.4	-	0.1	-	0.1	0.6
1711001004	0.1	-	0.3	-	0.15	0.2	-	-	-	0.75
1711001101	0.3	-	0.3	-	0.55	0.05	0.05	-	-	1.25
1711001102	0.9	-	2.79	-	1.75	0.65	0.7	-	0.3	7.09
1711001201	0.2	-	0.5	-	0.2	-	0.1	-	-	1
1711001202	0.15	-	2.07	-	0.5	-	-	-	-	2.72
1711001203	1.3	-	14.97	-	1.35	-	1.1	-	0.3	19.02
1711001204	1.25	-	0.77	-	1.55	-	0.3	-	0.2	4.07
1711001301	-	-	-	-	0.1	-	-	-	-	0.1
1711001302	-	-	-	-	0.1	-	-	-	-	0.1
1711001303	0.6	-	2.34	-	0.85	-	0.4	-	0.1	4.29
1711001401	-	-	-	-	-	-	0.1	-	-	0.1
1711001402	0.1	-	0.1	-	0.15	-	-	-	-	0.35
1711001403	-	-	0.3	0.1	0.2	-	-	-	-	0.6
1711001404	0.1	-	-	-	0.1	-	-	-	0.1	0.3
1711001405	0.1	0.1	0.74	-	0.7	-	0.1	-	-	1.74
1711001502	-	-	-	-	-	-	-	-	-	-
1711001503	-	-	0.3	-	0.35	-	-	-	0.25	0.9
1711001601	-	-	-	-	-	-	-	-	-	-
1711001602	0.1	-	0.1	-	-	-	0.1	-	-	0.3
1711001701	-	-	0.5	-	0.3	-	-	-	-	0.8
1711001802	-	-	0.7	-	-	-	-	-	-	0.7
1711001803	-	-	-	-	-	-	-	-	-	-
1711001804	-	-	-	-	-	-	-	-	-	-
1711001805	-	-	-	-	0.1	-	-	-	0.1	0.2

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711001806	-	-	-	-	-	-	-	-	0.05	0.05
1711001807	-	-	0.4	-	0.1	-	-	-	0.05	0.55
1711001808	-	-	0.5	-	-	-	0.1	-	-	0.6
1711001900	-	-	0.9	-	0.1	-	0.1	-	-	1.1
1711001901	0.3	0.1	1.4	-	1	-	0.1	-	0.2	3.1
1711001902	-	-	0.1	-	0.3	-	0.1	-	-	0.5
1711001904	0.5	-	1.3	-	0.4	-	0.4	-	0.2	2.8
1711001906	-	-	0.2	-	0.05	-	-	-	0.05	0.3
1711001908	-	-	0.1	-	0.2	-	0.1	-	0.12	0.52
1711002001	-	-	0.1	-	-	-	-	-	0.02	0.12
1711002002	-	-	0.1	-	-	-	-	-	-	0.1
1711002003	-	-	0.34	-	-	-	-	-	0.02	0.36
1711002004	-	-	0.24	-	-	-	0.1	-	0.22	0.56
1711002007	-	-	-	-	-	-	-	-	-	-
Total	**6.64**	**0.27**	**40.18**	**0.18**	**14.64**	**1.36**	**4.7**	**0.09**	**3**	**71.06**

EXHIBIT C-11. ANNUAL NUMBER OF FORECAST TECHNICAL ASSISTANCE SECTION 7 CONSULTATIONS BY WATERSHED AND ACTIVITY: PS STEELHEAD

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000201	-	-	0.3	-	-	-	-	-	-	0.3
1711000202	-	-	-	-	-	-	-	-	0.03	0.03
1711000204	-	-	-	-	-	-	-	-	-	-
1711000401	-	-	-	-	-	-	-	-	-	-
1711000402	-	-	-	-	-	-	-	-	-	-
1711000403	-	0.1	-	-	-	-	-	-	-	0.1
1711000404	-	-	-	-	-	-	-	-	-	-
1711000405	-	-	0.1	-	-	-	-	-	-	0.1
1711000504	-	-	-	-	-	-	-	-	-	-
1711000505	-	-	-	-	-	-	-	-	-	-
1711000506	-	-	-	-	-	-	-	-	-	-
1711000507	-	-	-	-	-	-	-	-	-	-
1711000508	-	-	-	-	-	-	-	-	-	-
1711000601	-	-	-	-	-	-	-	-	-	-
1711000602	-	-	-	-	-	-	-	-	-	-
1711000603	-	-	-	-	-	-	-	-	-	-
1711000604	-	-	-	-	0.3	-	-	-	-	0.3
1711000701	-	-	-	-	-	-	-	-	-	-
1711000702	-	-	-	-	-	-	0.1	-	-	0.1
1711000801	-	-	0.4	-	-	-	-	-	-	0.4
1711000802	-	-	0.1	-	0.5	-	-	-	0.03	0.63
1711000803	-	-	-	-	-	-	-	-	-	-
1711000901	-	-	-	-	-	-	-	-	-	-
1711000902	-	-	0.1	-	-	-	-	-	-	0.1
1711000903	-	-	-	-	0.2	-	-	-	-	0.2

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000904	-	-	-	-	-	-	-	-	-	-
1711000905	-	-	0.1	-	0.2	-	-	-	-	0.3
1711001003	-	-	-	-	-	-	0.1	-	-	0.1
1711001004	-	-	-	-	-	-	-	-	-	-
1711001101	-	-	0.1	-	0.1	-	-	-	-	0.2
1711001102	-	-	0.2	-	-	-	0.3	-	0.1	0.6
1711001201	-	-	-	-	0.05	-	-	-	-	0.05
1711001202	-	-	-	-	0.1	-	-	-	-	0.1
1711001203	-	-	0.2	-	0.1	-	-	-	-	0.3
1711001204	-	-	-	-	-	-	-	-	-	-
1711001301	-	-	-	-	-	-	-	-	-	-
1711001302	-	-	-	-	-	-	-	-	-	-
1711001303	-	-	0.1	-	0.05	-	-	-	0.1	0.25
1711001401	-	-	-	-	-	-	-	-	-	-
1711001402	-	-	-	-	-	-	-	-	-	-
1711001403	-	-	-	-	-	-	-	-	-	-
1711001404	-	-	-	-	-	-	-	-	-	-
1711001405	-	-	0.1	-	0.2	-	0.1	-	-	0.4
1711001502	-	-	-	-	-	-	-	-	-	-
1711001503	-	-	0.1	-	-	-	-	-	0.1	0.2
1711001601	-	-	-	-	-	-	-	-	-	-
1711001602	-	-	-	-	-	-	-	-	-	-
1711001701	-	-	-	-	-	-	-	-	-	-
1711001802	-	-	-	-	-	-	-	-	-	-
1711001803	-	-	-	-	-	-	-	-	-	-
1711001804	-	-	-	-	-	-	-	-	-	-
1711001805	-	-	0.1	-	-	-	-	-	-	0.1

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711001806	-	-	-	-	-	-	0.1	-	-	0.1
1711001807	-	-	-	-	-	-	-	-	-	-
1711001808	-	-	-	-	-	-	-	-	-	-
1711001900	-	-	-	-	-	-	-	-	-	-
1711001901	-	-	-	-	-	-	-	-	0.03	0.03
1711001902	-	-	-	-	-	-	-	-	0.1	0.1
1711001904	-	-	0.1	-	0.1	-	0.2	-	-	0.4
1711001906	-	-	-	-	-	-	-	-	-	-
1711001908	-	-	-	-	-	-	-	-	-	-
1711002001	-	-	-	-	-	-	-	-	-	-
1711002002	-	-	-	-	-	-	-	-	-	-
1711002003	-	-	-	-	-	-	0.1	-	-	0.1
1711002004	-	-	-	-	-	-	-	-	-	-
1711002007	-	-	-	-	-	-	-	-	-	-
Total	**0.00**	**0.09**	**1.91**	**0.00**	**1.73**	**0.00**	**1**	**0.00**	**0.45**	**5.18**

EXHIBIT C-12. ANNUAL NUMBER OF FORECAST PROGRAMMATIC SECTION 7 CONSULTATIONS BY WATERSHED AND ACTIVITY: PS STEELHEAD

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000201	-	-	0.01	-	-	-	-	-	-	0.01
1711000202	-	-	0.01	-	-	-	-	-	-	0.01
1711000204	-	-	-	-	-	-	-	-	-	-
1711000401	-	-	-	-	-	-	-	-	-	-
1711000402	-	-	-	-	-	-	-	-	-	-
1711000403	-	-	-	-	-	-	-	-	-	-
1711000404	-	-	-	-	-	-	-	-	-	-
1711000405	-	-	-	-	-	-	-	-	-	-
1711000504	-	-	-	-	-	-	-	-	-	-
1711000505	-	-	-	-	-	-	-	-	-	-
1711000506	-	-	-	-	-	-	-	-	-	-
1711000507	-	-	-	-	-	-	-	-	-	-
1711000508	-	-	-	-	-	-	-	-	-	-
1711000601	-	-	-	-	-	-	-	-	-	-
1711000602	-	-	-	-	-	-	-	-	-	-
1711000603	-	-	-	-	-	-	-	-	-	-
1711000604	-	-	-	-	-	-	-	-	-	-
1711000701	-	-	-	-	-	-	-	-	-	-
1711000702	-	-	-	-	-	-	-	-	-	-
1711000801	-	-	-	-	-	-	-	-	-	-
1711000802	-	-	-	-	-	-	-	-	-	-
1711000803	-	-	-	-	-	-	-	-	-	-
1711000901	-	-	-	-	-	-	-	-	-	-
1711000902	-	-	-	-	-	-	-	-	-	-
1711000903	-	-	-	-	-	-	-	-	-	-

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711000904	-	-	-	-	-	-	-	-	-	-
1711000905	-	-	-	-	-	-	-	-	-	-
1711001003	-	-	-	-	-	-	-	-	-	-
1711001004	-	-	-	-	-	-	-	-	-	-
1711001101	-	-	-	-	-	-	-	-	-	-
1711001102	-	-	0.01	-	-	-	-	-	-	0.01
1711001201	-	-	-	-	-	-	-	-	-	-
1711001202	-	-	0.03	-	-	-	-	-	-	0.03
1711001203	-	-	0.13	-	-	-	-	-	0.10	0.23
1711001204	-	-	0.03	-	-	-	-	-	-	0.03
1711001301	-	-	-	-	-	-	-	-	-	-
1711001302	-	-	-	-	-	-	-	-	-	-
1711001303	-	-	0.01	-	-	-	-	-	-	0.01
1711001401	-	-	-	-	-	-	-	-	-	-
1711001402	-	-	-	-	-	-	-	-	-	-
1711001403	-	-	-	-	-	-	-	-	-	-
1711001404	-	-	-	-	-	-	-	-	-	-
1711001405	-	-	0.01	-	-	-	-	-	-	0.01
1711001502	-	-	-	-	-	-	-	-	-	-
1711001503	-	-	-	-	-	-	-	-	-	-
1711001601	-	-	-	-	-	-	-	-	-	-
1711001602	-	-	-	-	-	-	-	-	-	-
1711001701	-	-	-	-	-	-	-	-	-	-
1711001802	-	-	-	-	-	-	-	-	-	-
1711001803	-	-	-	-	-	-	-	-	-	-
1711001804	-	-	-	-	-	-	-	-	-	-
1711001805	-	-	-	-	-	-	-	-	-	-

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDROPOWER	OTHER	TOTAL
1711001806	-	-	-	-	-	-	-	-	-	-
1711001807	-	-	-	-	-	-	-	-	-	-
1711001808	-	-	-	-	-	-	-	-	-	-
1711001900	-	-	-	-	-	-	-	-	-	-
1711001901	-	-	-	-	-	-	-	-	-	-
1711001902	-	-	-	-	-	-	-	-	-	-
1711001904	-	-	-	-	-	-	-	-	-	-
1711001906	-	-	-	-	-	-	-	-	-	-
1711001908	-	-	-	-	-	-	-	-	-	-
1711002001	-	-	-	-	-	-	-	-	-	-
1711002002	-	-	-	-	-	-	-	-	-	-
1711002003	-	-	0.01	-	-	-	-	-	-	0.01
1711002004	-	-	0.01	-	-	-	-	-	-	0.01
1711002007	-	-	-	-	-	-	-	-	-	-
Total	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.1	0.36

EXHIBIT C-13. FORECAST ANNUAL COSTS (UNDISCOUNTED) BY WATERSHED AND ACTIVITY: PS STEELHEAD

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDRO-POWER	OTHER	TOTAL
1711000201	$322	-	$6,770	-	$1,630	$254	-	-	-	$8,970
1711000202	$645	-	$7,890	-	$4,520	-	$3,940	-	$779	$17,800
1711000204	$161	-	$3,010	-	$3,260	$507	$789	-	$36	$7,760
1711000401	-	-	$188	-	-	-	-	-	-	$188
1711000402	-	-	-	-	$1,310	-	-	-	-	$1,310
1711000403	-	$416	$1,530	-	$2,940	-	-	-	-	$4,890
1711000404	-	$207	-	-	$2,670	-	-	-	$179	$3,050
1711000405	-	-	$3,050	-	$4,340	$254	-	-	-	$7,650
1711000504	-	-	-	-	-	-	-	-	$179	$179
1711000505	-	-	-	-	-	-	-	-	-	-
1711000506	-	-	-	-	-	-	-	-	-	-
1711000507	-	-	$376	-	-	-	-	-	-	$376
1711000508	-	-	$188	-	-	-	-	-	-	$188
1711000601	-	-	-	-	$1,850	-	-	-	-	$1,850
1711000602	-	-	-	-	-	-	-	-	-	-
1711000603	$1,500	-	$188	-	$1,630	-	-	-	-	$3,310
1711000604	-	-	$260	-	$8,810	-	-	-	$179	$9,250
1711000701	-	-	$1,320	-	$1,630	$254	$3,520	-	$179	$6,900
1711000702	$161	-	$3,410	-	$814	-	$4,450	$1,720	$179	$10,700
1711000801	$322	-	$2,840	-	$2,670	-	$1,760	-	-	$7,590
1711000802	$161	-	$958	-	$5,490	-	$394	-	$62	$7,070
1711000803	-	-	$1,160	-	$3,260	-	$1,580	-	$359	$6,350
1711000901	-	-	-	-	-	-	-	-	-	-
1711000902	-	-	$1,410	$152	$1,040	-	$789	-	-	$3,390
1711000903	$161	-	$448	-	$2,830	-	-	-	-	$3,440

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDRO-POWER	OTHER	TOTAL
1711000904	-	-	-	-	$814	-	-	-	-	$814
1711000905	-	-	$1,000	-	$4,500	-	-	$650	-	$6,160
1711001003	-	-	-	-	$3,260	-	$927	-	$179	$4,360
1711001004	$161	-	$564	-	$6,420	$507	$1,760	-	-	$9,420
1711001101	$484	-	$1,000	-	$4,670	$127	$394	-	-	$6,680
1711001102	$1,450	-	$8,030	-	$15,300	$1,650	$5,940	-	$1,080	$33,400
1711001201	$322	-	$939	-	$3,290	-	$789	-	-	$5,340
1711001202	$242	-	$11,500	-	$4,270	-	-	-	-	$16,000
1711001203	$2,100	-	$73,600	-	$17,400	-	$8,680	-	$723	$103,000
1711001204	$2,020	-	$2,070	-	$15,200	-	$4,130	-	$359	$23,800
1711001301	-	-	-	-	$814	-	-	-	-	$814
1711001302	-	-	-	-	$814	-	-	-	-	$814
1711001303	$967	-	$7,260	-	$9,100	-	$3,160	-	$723	$21,200
1711001401	-	-	-	-	-	-	$789	-	-	$789
1711001402	$161	-	$188	-	$2,260	-	-	-	-	$2,610
1711001403	-	-	$824	$152	$1,630	-	-	-	-	$2,600
1711001404	$161	-	-	-	$1,850	-	-	-	$179	$2,200
1711001405	$161	$207	$3,220	-	$8,170	-	$927	-	-	$12,700
1711001502	-	-	-	-	$2,080	-	-	-	-	$2,080
1711001503	-	-	$1,000	-	$2,850	-	-	-	$633	$4,490
1711001601	-	-	-	-	-	-	-	-	-	-
1711001602	$161	-	$188	-	-	-	$789	-	-	$1,140
1711001701	-	-	$939	-	$2,440	-	-	-	-	$3,380
1711001802	-	-	$1,320	-	-	-	-	-	$30	$1,350
1711001803	-	-	-	-	-	-	-	-	-	-
1711001804	-	-	-	-	-	-	-	-	$30	$30
1711001805	-	-	$439	-	$2,890	-	-	-	$209	$3,540

HUC	DEVELOPMENT	FEDERAL	INSTREAM WORK	MINING	TRANSPORTATION	UTILITIES	WATER SUPPLY	HYDRO-POWER	OTHER	TOTAL
1711001806	-	-	$260	-	-	-	$139	-	$299	$697
1711001807	-	-	$752	-	$814	-	-	-	$299	$1,860
1711001808	-	-	$1,200	-	-	-	$789	-	$179	$2,170
1711001900	-	-	$1,690	-	$814	-	$789	-	-	$3,290
1711001901	$484	$207	$3,410	-	$10,200	-	$789	-	$420	$15,500
1711001902	-	-	$188	-	$2,440	-	$789	-	$185	$3,600
1711001904	$2,140	-	$3,920	-	$4,490	-	$3,430	-	$359	$14,300
1711001906	-	-	$376	-	$407	-	-	-	$90	$873
1711001908	-	-	$188	-	$1,630	-	$789	-	$424	$3,030
1711002001	-	-	$188	-	-	-	-	-	$66	$254
1711002002	-	-	$188	-	-	-	-	-	-	$188
1711002003	-	-	$727	-	-	-	$1,900	-	$66	$2,690
1711002004	-	-	$539	-	-	-	$789	-	$424	$1,750
1711002007	-	-	$29,700	-	-	-	-	-	$30	$29,800
Total	**$14,400**	**$1,040**	**$192,000**	**$304**	**$182,000**	**$3,550**	**$55,700**	**$2,370**	**$9,120**	**$461,000**

EXHIBIT C-14. FORECAST ANNUAL SECTION 7 CONSULATIONS BY WATERSHED AND TYPE OF CONSULTATION: PS STEELHEAD

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL	TOTAL COSTS
1711000201	0.30	2.94	0.01	0.30	3.56	$8,970
1711000202	1.50	3.89	0.01	0.03	5.44	$17,800
1711000204	-	2.42	-	-	2.42	$7,760
1711000401	-	0.10	-	-	0.10	$188
1711000402	0.10	0.03	-	-	0.13	$1,310
1711000403	0.40	0.63	-	0.10	1.13	$4,890
1711000404	0.10	0.40	0.10	-	0.60	$3,050
1711000405	0.50	1.33	-	0.10	1.93	$7,650
1711000504	-	0.10	-	-	0.10	$179
1711000505	-	-	-	-	-	$0
1711000506	-	-	-	-	-	$0
1711000507	-	0.20	-	-	0.20	$376
1711000508	-	0.10	-	-	0.10	$188
1711000601	0.10	0.10	-	-	0.20	$1,850
1711000602	-	-	-	-	-	$0
1711000603	0.10	0.40	-	-	0.50	$3,310
1711000604	0.50	0.60	-	0.30	1.40	$9,250
1711000701	0.20	1.10	-	-	1.30	$6,900
1711000702	0.60	1.80	-	0.10	2.50	$10,700
1711000801	0.40	0.70	-	0.40	1.50	$7,590
1711000802	0.40	0.45	-	0.63	1.48	$7,070
1711000803	0.30	1.00	-	-	1.30	$6,350
1711000901	-	-	-	-	-	$0
1711000902	0.40	0.30	-	0.10	0.80	$3,390
1711000903	0.10	0.50	-	0.20	0.80	$3,440

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL	TOTAL COSTS
1711000904	-	0.10	-	-	0.10	$814
1711000905	0.20	0.65	-	0.30	1.15	$6,160
1711001003	-	0.60	-	0.10	0.70	$4,360
1711001004	0.60	0.75	-	-	1.35	$9,420
1711001101	-	1.25	-	0.20	1.45	$6,680
1711001102	0.90	7.09	0.01	0.60	8.61	$33,400
1711001201	0.15	1.00	-	0.05	1.20	$5,340
1711001202	2.87	2.72	0.03	0.10	5.72	$16,000
1711001203	17.47	19.02	0.23	0.30	37.02	$103,000
1711001204	0.52	4.07	0.03	-	4.62	$23,800
1711001301	-	0.10	-	-	0.10	$814
1711001302	-	0.10	-	-	0.10	$814
1711001303	1.20	4.29	0.01	0.25	5.76	$21,200
1711001401	-	0.10	-	-	0.10	$789
1711001402	0.10	0.35	-	-	0.45	$2,610
1711001403	0.10	0.60	-	-	0.70	$2,600
1711001404	0.10	0.30	-	-	0.40	$2,200
1711001405	0.70	1.74	0.11	0.40	2.96	$12,700
1711001502	0.20	-	-	-	0.20	$2,080
1711001503	-	0.90	-	0.20	1.10	$4,490
1711001601	-	-	-	-	-	$0
1711001602	-	0.30	-	-	0.30	$1,140
1711001701	-	0.80	-	-	0.80	$3,380
1711001802	0.01	0.70	-	-	0.71	$1,350
1711001803	-	-	-	-	-	$0
1711001804	0.01	-	-	-	0.01	$30
1711001805	0.21	0.20	-	0.10	0.51	$3,540

HUC	FORMAL	INFORMAL	PROGRAMMATIC	TECHNICAL ASSISTANCE	TOTAL	TOTAL COSTS
1711001806	0.16	0.05	-	0.10	0.31	$697
1711001807	0.06	0.55	-	-	0.61	$1,860
1711001808	0.15	0.60	-	-	0.75	$2,170
1711001900	-	1.10	-	-	1.10	$3,290
1711001901	0.50	3.10	0.10	0.03	3.73	$15,500
1711001902	-	0.50	-	0.10	0.60	$3,600
1711001904	0.60	2.80	-	0.40	3.80	$14,300
1711001906	-	0.30	-	-	0.30	$873
1711001908	0.06	0.52	-	-	0.58	$3,030
1711002001	0.01	0.12	-	-	0.13	$254
1711002002	-	0.10	-	-	0.10	$188
1711002003	0.11	0.36	0.01	0.10	0.59	$2,690
1711002004	0.01	0.56	0.01	-	0.59	$1,750
1711002007	0.21	-	-	-	0.21	$29,800
Total	**33.2**	**77.5**	**0.7**	**5.6**	**116.7**	**$461,000**

Note: "Formal" consultations include consultations classified as "formal," "emergency," "conference" and "implementation".

EXHIBIT C-15. PAST ANNUAL SECTION 7 CONSULATIONS BY TYPE OF CONSULTATION, 2001-2010: PS STEELHEAD

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL	ANNUAL AVERAGE
Formal	2	3	4	20	14.5	8	13.33	15	15	6	101	10.08
Informal	3	2	19	148.5	120	102	111.5	93	107.33	75.17	782	77.65
Technical Assistance	1	1	2	18	12	12	5	3	3	-	57	5.7
Programmatic	-	-	-	1	-	1	1	-	-	1	4	0.4
Conference	-	-	-	-	-	-	-	-	-	-	-	0.0
Implementation	-	-	-	-	13	55	60	40	52	12	232	23.1
Total	**6**	**6**	**25**	**188**	**160**	**178**	**191**	**151**	**177**	**94**	**1,175**	**116.7**

EXHIBIT C-16. PAST ANNUAL SECTION 7 CONSULATIONS BY ACTIVITY, 2001-2010: PS STEELHEAD

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL	ANNUAL AVERAGE
Hydropower	-	-	-	-	-	1.00	-	1.00	-	-	**2.00**	**0.20**
Water supply	-	1.00	2.00	12.00	9.00	1	5.00	4.00	17.33	10.17	**70.50**	**7.05**
Federal lands	-	-	-	1.00	1.00	1.00	1.00	-	-	-	**4.00**	**0.40**
Development	-	-	4.00	1	14.00	1	14.00	9.00	7.00	7.00	**75.00**	**7.50**
Instream work	2.00	3.00	15.00	96.50	88.50	119.00	138.00	102.00	113.00	6	**737.00**	**73.70**
Mining	-	-	-	-	-	1.00	-	-	1.00	-	**2.00**	**0.20**
Transportation	1.00	1.00	4.00	58.00	39.00	26.00	29.00	28.00	29.00	1	**225.00**	**22.50**
Utilities	1.00	-	-	3.00	4.00	2.00	1.00	3.00	-	1.00	**15.00**	**1.50**
Other	2.00	1.00	-	7.00	4.00	8.00	2.83	4.00	1	6.00	**44.83**	**4.48**