FINAL

ENVIRONMENTAL ASSESSMENT

HARVEST CONTROL RULE FOR LOWER COLUMBIA RIVER COHO EVOLUTIONARILY SIGNIFICANT UNIT IN FISHERIES MANAGED UNDER THE PACIFIC COAST SALMON FISHERY MANAGEMENT PLAN

Prepared by the
National Marine Fisheries Service

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List of Acronyms

EA	Environmental Assessment
EFH	Essential Fish Habitat
ENSO	El Niño/Southern Oscillation
ESA	Endangered Species Act (U.S. Federal act unless otherwise specified)
ESU	Evolutionarily Significant Unit
FMP	Fishery Management Plan (for Pacific Salmon)
FONSI	Finding of No Significant Impact
LCN	Lower Columbia River natural (coho), PFMC terminology
LCR	Lower Columbia River (coho), NMFS terminology
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWFSC	NOAA's Northwest Fisheries Science Center
ODFW	Oregon Department of Fish and Wildlife
PDO	Pacific Decadal Oscillation
PFMC	Pacific Fishery Management Council
SRKW	Southern Resident Killer Whale
STT	Salmon Technical Team
WDFW	Washington Department of Fish and Wildlife

1.0 Introduction

Ocean salmon fisheries off the West Coast states of California, Oregon, and Washington are managed by the Pacific Fishery Management Council (Council) under the Pacific Coast Salmon Fishery Management Plan (FMP) (PFMC 2014a). Management of the salmon stocks in the FMP can be affected when the National Marine Fisheries Service (NMFS) lists evolutionarily significant units (ESUs) of Pacific salmon (Waples 1991) as either threatened or endangered under the U.S. Endangered Species Act (ESA). If a fishery is expected to interact with ESA-listed salmon (i.e., result in a "take" of an ESA-listed species), NMFS initiates a formal consultation under section 7 of the ESA to evaluate fishery impacts, and issues a biological opinion to report the findings. In 2005, the Lower Columbia River coho salmon ESU (LCR coho) was ESA-listed as threatened (70 FR 37160, June 28, 2005). Biological opinions issued by NMFS, beginning in 2006, have analyzed the use of a harvest control rule to determine the allowable level of take of LCR coho in Council-managed fisheries. In 2015, the Council recommended a new harvest control rule for consideration by NMFS (McIsaac 2015). This environmental assessment (EA) analyzes the environmental effects of implementing a new harvest control rule for LCR coho. The LCR coho ESU is synonymous with the Lower Columbia River natural coho stock (LCN coho) in the FMP. For consistency with NMFS documents, including biological opinions, this EA uses the ESU name, LCR coho, to refer to these salmon; LCN coho is used in relation to Council activities and documents.

1.1 How This Document is Organized

This EA analyzes alternatives for a harvest control rule to limit impacts on ESA-listed LCR coho. The Preferred Alternative will be analyzed in a biological opinion on the effects of Council-managed salmon fisheries on LCR coho, beginning in 2015.

- Section 1 provides background information, purpose and need, and describes the Proposed Action.
- Section 2 describes the alternatives.
- Section 3 describes the affected environment.
- Section 4 analyzes the potential environmental impacts of the alternatives.
- Section 5 addresses the consistency of the Preferred Alternative with laws other than the National Environmental Policy Act (NEPA).
- Section 6 lists the references cited in this document.
- Section 7 NEPA Finding of No Significant Impact (FONSI).

1.2 Background

Prior to the Federal ESA listing, the State of Oregon had listed Oregon Lower Columbia River wild coho salmon as an endangered species under Oregon's Endangered Species Act (Oregon ESA) in 1999. A state management plan for Oregon salmon populations, including proposed harvest strategies, was adopted in 2001 (Kern and Zimmerman 2013). Oregon's management plan included two harvest matrices for setting maximum acceptable exploitation rates in the ocean fishery and in mainstem Columbia River fisheries, based on marine survival and spawner abundance.

Because NMFS promulgates the ocean fishing regulations for fisheries managed under the auspices of the Council, NMFS conducts consultations and issues biological opinions under section 7(a)(2) of the ESA, on the impacts of Council-managed fisheries on ESA-listed salmon. At the time the Council was developing the 2005 annual management measures for ocean salmon fisheries, the Federal ESA listing of LCR coho was proposed, but not finalized; therefore, no formal ESA consultation had occurred, and in its annual guidance to the Council, NMFS accepted Oregon's harvest matrix, in part, as guidance for the 2005 season, and recommended a total fishery exploitation rate (combined marine and freshwater impacts) equal to Oregon's ocean fishery mortality limit of 15 percent (Lohn and McInnis 2005). NMFS' conservative approach to setting an acceptable exploitation rate for LCR coho was largely due to the limited data available to inform Oregon's harvest matrices, based on data from two coho populations, Clackamas and Sandy Rivers, the primary strongholds for natural production of LCR coho and the only populations in the LCR coho salmon ESU for which natural production trends could be estimated (NMFS 2006, 2007, 2008). LCR coho were listed in 2005. In 2006, 2007, and 2008, NMFS conducted formal consultations on the impacts of Council-managed fisheries on LCR coho. In the resulting biological opinions, NMFS continued to analyze Oregon's matrix for ocean fishery mortality limit and applied to combined marine and freshwater impacts (15 percent in 2006, 15 percent in 2007, and 20 percent in 2008) (NMFS 2008, PFMC 2014b). The 2006 and 2007 biological opinions were each in effect for a single fishing year; the 2008 biological opinion remained in effect through 2014. These biological opinions concluded that using the ocean fishery portion of Oregon's harvest matrix as a guideline in setting annual exploitation rates for LCR coho was not likely to jeopardize the continued existence of the species.

In 2011, NMFS, Oregon Department of Fish and Wildlife (ODFW), and Washington Department of Fish and Wildlife (WDFW) discussed the need for an updated harvest control rule for LCR coho. The states made a presentation to the Council in November 2013, after which the Council established an *ad hoc* Lower Columbia River Natural Coho Workgroup (coho workgroup) to develop an updated harvest control rule to be considered by NMFS in a new ESA consultation to be conducted in 2015. The coho workgroup met several times in 2014 to evaluate available data, develop a variety of harvest models, and analyze those models. During those meetings, NMFS staff conferred with the workgroup and determined that, based on updated information for populations within the ESU, the new harvest control rule should target an effective exploitation rate of 0.18 on LCR coho in combined impacts from ocean and freshwater fisheries.

In November 2014, the Council identified a final preferred option harvest control rule for recommendation to NMFS; the Council transmitted their recommendation to NMFS' West Coast Region in a letter dated January 21, 2015 (McIsaac 2015). This EA analyzes the Council's preferred option (model 5g), another action alternative that was considered by the Council (model 5b), and the No-action Alternative.

1.3 Purpose and Need

The purpose of the Proposed Action is to incorporate new information on LCR coho populations and stock status into the control rule limiting impacts on LCR coho. The need for the proposed action is to determine if a revised control rule, incorporating new information, can be developed that is less

complex than existing harvest control rules and optimizes fishing strategies consistent with acceptable conservation risk tolerances in coordination with the applicable state and Federal recovery plans, including the preliminary goal of an 18-percent exploitation rate on LCR coho.

1.4 Proposed Action

The Proposed Action is to adopt a harvest control rule to identify appropriate impact levels to LCR coho from Council-managed salmon fisheries beginning in 2015. This harvest control rule would be analyzed in a biological opinion conducted under section 7 of the ESA, and would be used to develop guidance to the Council in formulating annual management measures for ocean salmon fisheries.

1.5 Public Participation

The alternatives analyzed in this document were developed through the Council process. This involved discussion at three Council meetings and several meetings of the Council's coho workgroup. All of these meetings were open to the public and announced in the *Federal Register*. The Council meetings and some of the workgroup meetings were also streamed live online. Opportunity for public comment was provided at all meetings.

Table 1-1. Meetings of the Pacific Fishery Management Council and the Lower Columbia River Natural Coho Workgroup during development of the alternatives analyzed in this EA. Table shows the date and location of the meetings.

Pacific Fishery Management Council Meetings	Lower Columbia River Natural Coho Workgroup Meetings (Council offices in Portland, Oregon)
November 1 – 6, 2013 (Costa Mesa, California)	May 15, 2014
September 12 – 17, 2014 (Spokane, Washington)	July 16, 2014
November 12 – 19, 2014 (Costa Mesa, California)	August 14, 2014
	September 3, 2014
	October 15, 2014

1.6 Related Documents Incorporated by Reference

Allowable fishery impacts to lower Columbia River natural coho: A review of the 2006 harvest control rule for possible policy reconsideration (Beamesderfer et al. 2014). This coho workgroup report to the Council (November 2014) describes the methodology used in developing alternatives to the 2006 harvest control rule and analyses of the alternatives.

Biological opinion on the effects of the Pacific Coast Salmon Plan and U.S. Fraser Panel fisheries on the Lower Columbia River coho and Lower Columbia River Chinook evolutionarily significant units listed under the Endangered Species Act and Magnuson-Stevens Act essential fish habitat consultation (NMFS 2008). This biological opinion provides comprehensive background information on the consultation history, incidental take assessment, and development of conservation recommendations. This document is the basis for the No-action Alternative.

Community profiles for West Coast and North Pacific fisheries–Washington, Oregon, California, and other U.S. states (Norman et al. 2007). This document profiles 125 fishing communities in Washington, Oregon, California, and two other U.S. states with basic social and economic characteristics.

Environmental Assessment for 2014 Ocean Salmon Fisheries Management Measures (PFMC and NMFS 2014a). This document incorporates the Council's Preseason Reports (I, II, and III) which informed the setting of 2014 ocean salmon fisheries management measures. The EA contains the most current information on salmon fisheries, socioeconomic data related to the salmon fisheries, stock abundance forecasts, harvest data, and historical data for economics and salmon harvest.

Lower Columbia Natural Coho Workgroup report on the Lower Columbia River coho harvest matrix (LCN Coho Workgroup 2014). This document, from the November 2014 Council briefing book, summarizes the alternatives recommended to the Council by the LCN coho workgroup at the November 2014 Council meeting.

Pacific Coast Salmon Fishery Management Plan (FMP) (PFMC 2014a). The FMP forms the basis for Pacific salmon management, including harvest, conservation objectives, consistency with national standards, and essential fish habitat (EFH). It has been amended 18 times.

Review of 2013 ocean salmon fisheries, stock assessment and fishery evaluation (SAFE) document (PFMC 2014b). This most recent annual review of the ocean salmon fisheries provides an historical baseline for salmon stocks affected by Council-managed salmon fisheries.

2.0 Description of Alternatives

The alternatives analyzed in this document include the No-action Alternative, the Preferred Alternative (Council model 5g), and an additional alternative (Council model 5b). All analyzed alternatives take the form of a matrix from which the appropriate exploitation rate for LCR coho can be determined. All of these matrices include a parameter for "Marine Survival Index." Marine survival is based on the rate of return of coho jacks[1] to fresh water compared to the number of outmigrating smolts from the same cohort. The No-action and Preferred Alternatives also include a parameter for "Parental Escapement" (expressed as the rate of seeding of spawning habitat). Both marine survival and parental escapement would be calculated annually by the states, and NMFS would apply those values to the adopted matrix to guide the acceptable exploitation rate to apply to LCR coho in the Council's process of setting annual management measures for ocean salmon fisheries.

2.1 Alternative 1 – No-action Alternative

Under the No-action Alternative, the 2006 harvest matrix would continue to be used as a guideline in setting annual exploitation rates for LCR coho. The current abundance-based matrix uses five levels of

[1] A coho jack is a sexually mature male coho that returns to fresh water to spawn after only five to seven months in the ocean, rather than the usual 18 months (Weitkamp et al. 1995).

parental escapement and four levels of marine survival (5 x 4 matrix), see Table 2-1. Under the No-action Alternative, the harvest control rule would, in theory, allow LCR coho exploitation rates ranging from 0 to 0.45; however, in the nine years that this harvest control rule has been used, actual applied exploitation rates have ranged from 0.08 to 0.225, and most commonly the exploitation rate has been 0.15.

Table 2-1. No-action Alternative. Harvest management matrix for LCR coho, that has been in use since 2006, showing allowable fishery exploitation rates based on parental escapement and marine survival index. Table adapted from LCN Coho Workgroup (2014). The symbol % means percent.

Parental Escapement (rate of full seeding)		Marine Survival Index (based on return of jacks per hatchery smolt)				
		Critical (< 8%)	Low (< 15%)	Medium (< 40%)	High (> 40%)	
High	>0.75	< 0.08	< 0.15	< 0.30	< 0.45	Allowable exploitation rate
Medium	0.75 to 0.50	< 0.08	< 0.15	< 0.20	< 0.38	
Low	0.50 to 0.20	< 0.08	< 0.15	< 0.15	< 0.25	
Very Low	0.20 to 0.10	< 0.08	< 0.11	< 0.11	< 0.11	
Critical	<0.10	0-0.08	0-0.08	0-0.08	0-0.08	

The existing matrix was developed using data from the Clackamas and Sandy River coho populations, historically the strongest of the extant populations in the ESU, and the only populations for which long-term stock assessment data were available at the time the matrix was developed.

2.2 Alternative 2 – Council model 5g (Preferred Alternative)

Alternative 2 was recommended to NMFS as the Council's Preferred Alternative. The Preferred Alternative would use a matrix with two levels of parental escapement and five levels of marine survival (2 x 5 matrix), see Table 2-2. Under this alternative, the range of exploitation rates for LCR coho would be 0.10 to 0.30, in most years the exploitation rate of LCR coho in salmon fisheries would be 0.18 to 0.23.

Table 2-2. Alternative 2 (Preferred Alternative). Harvest management matrix for LCR coho showing allowable fishery exploitation rates based on parental escapement and marine survival index. Table adapted from LCN Coho Workgroup (2014). The symbol % means percent.

Parental Escapement (rate of full seeding)		Marine Survival Index (based on return of jacks per hatchery smolt)					
		Very Low (≤ 6%)	Low (≤ 8%)	Medium (≤ 17%)	High (≤ 40%)	Very High (> 40%)	
Normal	≥ 0.30	0.10	0.15	0.18	0.23	0.30	Allowable exploitation rate
Very Low	< 0.30	≤ 0.10	≤ 0.15	≤ 0.18	≤ 0.23	≤ 0.30	

2.3 Alternative 3 – Council model 5b

Alternative 3 would use a matrix with five levels of marine survival and no consideration of parental escapement (rate of full seeding) (1 x 5 matrix), see Table 2-3. Under this alternative, the range of

exploitation rates for LCR coho would be 0.10 to 0.30, in most years the exploitation rate of LCR coho in salmon fisheries would be 0.15 to 0.20.

Table 2-3. Alternative 3 (Council alternative model 5b). Harvest management matrix for LCR coho showing allowable fishery exploitation rates based on marine survival index. Table adapted from LCN Coho Workgroup (2014). The symbol % means percent.

	Marine Survival Index (based on return of jacks per hatchery smolt)				
	Very Low (≤ 5.9%)	Low (≤ 10.9%)	Medium (≤ 23%)	High (≤ 28%)	Very High (> 28%)
Allowable exploitation rate	0.10	0.15	0.20	0.25	0.30

2.4 Alternatives Considered But Rejected from Further Analysis

The Council considered two additional alternatives that did not differ substantially, either from each other or from the Action Alternatives described above, in terms of the values for the "Very Low" to "Very High" categories for Marine Survival Index, and the values for allowable exploitation rate which fall within the range of values in the analyzed alternatives (see Tables 2-4 and 2-5). Therefore, analysis of those two alternatives would not inform a decision and they were rejected from further analysis.

Table 2-4. Rejected Council alternative model 5e. Harvest management matrix for LCR coho showing allowable fishery exploitation rates based on marine survival index. Table adapted from LCN Coho Workgroup (2014). The symbol % means percent.

	Marine Survival Index (based on return of jacks per hatchery smolt)				
	Very Low (≤ 6%)	Low (≤ 7.55%)	Medium (≤ 12.7%)	High (≤ 23%)	Very High (> 23%)
Allowable exploitation rate	0.10	0.15	0.18	0.20	0.23

Table 2-5. Rejected Council alternative model 5f. Harvest management matrix for LCR coho showing allowable fishery exploitation rates based on marine survival index. Table adapted from LCN Coho Workgroup (2014). The symbol % means percent.

	Marine Survival Index (based on return of jacks per hatchery smolt)				
	Very Low (≤ 6%)	Low (≤ 7.55%)	Medium (≤ 23%)	High (≤ 28%)	Very High (> 28%)
Allowable exploitation rate	0.10	0.15	0.18	0.20	0.30

2.5 Summary of Analyzed Alternatives

The LCN Coho Workgroup analyzed harvest control rule alternatives using available data for the years 2005 through 2013. Key features of the three analyzed alternatives include: the structure of the analysis matrix each would use, the range of possible impact rates for LCR coho, the expected concentration of those rates (i.e., the range of impact rates most likely to be used), and the average (arithmetic mean) exploitation rate that would be expected from application of each alternative. These features are summarized in Table 2-6.

Table 2-6. Comparison of the key features of the three analyzed alternatives (LCN Coho Workgroup 2014).

Alternative	Matrix structure	Impact rates (exploitation rates) on LCR coho		
		Range of possible impact	Concentrated range of allowable impact	Average exploitation rate*
Alternative 1. No-action Alternative	5 x 4 matrix	0.08 – 0.45	0.15 – 0.20	0.153
Alternative 2. Preferred Alternative	2 x 5 matrix	0.10 – 0.30	0.18 – 0.23	0.179
Alternative 3. Council Model 5b	1 x 5 matrix	0.10 – 0.30	0.15 – 0.20	0.183

*The average exploitation rate is the arithmetic mean of the allowable exploitation rate obtained applying each alternative to historical LCR coho productivity (2005 – 2013).

The LCN Coho Workgroup conducted a retrospective analysis, applying the alternatives to the LCR coho productivity in the years 2005 through 2013. Table 2-7 shows the exploitation rates that would have been applied in those years under the three alternatives.

Table 2-7. Retrospective analysis of the impact of the three alternatives on LCR exploitation rate for the years 2005 – 2013 (Beamesderfer et al. 2014).

Year	Marine Survival Index	Projected LCR Coho Ocean Abundance (in thousands)	Allowable LCR coho exploitation rate		
			Alternative 1: No-action	Alternative 2: Preferred	Alternative 3: Council Model 5b
2005	0.096	403	0.15	0.18	0.15
2006	0.101	449	0.15	0.18	0.15
2007	0.168	479	0.20	0.18	0.20
2008	0.069	541	0.08	0.15	0.15
2009	0.267	931	0.20	0.23	0.25
2010	0.114	502	0.15	0.18	0.20
2011	0.120	412	0.15	0.18	0.20
2012	0.073	170	0.15	0.15	0.15
2013	0.120	279	0.15	0.18	0.20
Average	*0.125*	*463*	*0.153*	*0.179*	*0.183*

3.0 Affected Environment

A NEPA workgroup composed of staff from NMFS and the Council held a scoping meeting on the Proposed Action, and made a preliminary determination that the resources listed in Table 3-1 comprised the affected environment. This chapter describes the resources identified in the initial scoping and

identifies those resources that would be affected by the Proposed Action and are, therefore, analyzed in Chapter 4.

Table 3-1. Affected environment resources identified in initial scoping for the Proposed Action.

Affected Environment Resources	
Fisheries and Fish Resources	
	• Salmon species • Overfished species • Non-salmon Species (Pacific and California halibut, coastal pelagic species, highly migratory species, groundfish, Dungeness crab, shrimp/prawns, sea cucumbers)
Protected Resources	
	• ESA-listed species (salmon, eulachon, green sturgeon, sea turtles) • Marine mammals • Seabirds
Marine Ecosystem and Fish Habitat	
Socioeconomics	
Social Impact Assessment	
	• Tourism and recreation • Environmental justice
Human Health and Safety	

3.1 Analysis Area

The Proposed Action affects Council-managed salmon fisheries that impact LCR coho. These fisheries occur north of California; therefore, the analysis area is the exclusive economic zone (EEZ), from three to 200 miles offshore, off the coasts of the states of Washington and Oregon.

3.2 Fisheries and Fish Resources

Initial scoping identified several fisheries and fish resources that should be considered in the analysis of the Proposed Action. In fact, very few of the identified fish resources will be impacted by the Proposed Action. The discussion below clarifies which fish resources would, in fact, be impacted and, therefore, will be analyzed in Chapter 4, Environmental Consequences of the Alternatives.

3.2.1 Salmon species

Six species of anadromous Pacific salmon (*Oncorhynchus* spp.) occur within the action area: Chinook salmon (*O. tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), sockeye (*O. nerka*), pink (*O. gorbuscha*), and steelhead (*O. mykiss*). Of these species, three are rarely, if ever, encountered in the ocean salmon fisheries, and are not managed under the FMP (chum, sockeye, and steelhead). Pink salmon are occasionally taken in ocean salmon fisheries, but are not generally targeted. Chinook and coho are the primary target species in the ocean salmon fisheries managed under the FMP. These salmon species, and their fisheries, would be impacted by the Proposed Action, which would affect harvest in the action area.

The Council manages several stocks of salmon under the FMP. In the ocean, stocks of salmon comingle which results in mixed-stock fisheries. Non-target stocks will be encountered in mixed-stock fisheries. The Council's Salmon Technical Team models the degree to which non-target stocks are impacted by

proposed fisheries, and the Council uses tools such as harvest restrictions, time and area closures, and mark-selective fisheries to limit impacts to non-target stocks (PFMC and NMFS 2014a). The coho workgroup developed general guidelines for how allowable impacts on LCR coho would likely affect salmon fisheries. These guidelines are presented in Table 3-2.

Table 3-2. Guidelines for fishery implications of exploitation rate limits on LCR coho (adapted from Beamesderfer et al. 2014).

Allowable LCR coho exploitation rate	Fishery impacts
0.10	No retention of coho
0.10 – 0.20	Mark-selective retention of hatchery origin coho
0.20 – 0.25	Coho targeted in fishery (non-mark-selective)
0.30	Maximum usable exploitation rate

In Council-managed salmon fisheries, the majority of coho harvested (80 percent) are taken in fisheries north of Cape Falcon; only 20 percent are harvested south of Cape Falcon (PFMC 2014b). Recreational fisheries harvest more coho (66 percent) than commercial fisheries (34 percent) (PFMC 2014b).

A list of the salmon stocks and stock complexes managed in the ocean salmon fisheries is provided in the FMP (PFMC 2014a). A description of the historical baseline for salmon stocks managed under the FMP is presented in the Review of 2013 Ocean Salmon Fisheries (PFMC 2014b). Both of these documents (PFMC 2014a and 2014b) are incorporated herein by reference.

3.2.2 Overfished species

There are currently no overfished species that would be affected by the Proposed Action. In any given year, if there were overfished species, or species at risk of overfishing, that would be affected by ocean salmon fisheries, fisheries would be constrained to limit impacts on the overfished species. This scenario has occurred in the past (e.g., commercial salmon fisheries south of Cape Falcon, Oregon were closed in 2008 under a “conservation alert” for Sacramento River fall Chinook, 73 FR 23971). Because the Proposed Action has no impact on overfished species, these will not be included in Chapter 4.

3.2.3 Non-salmon species managed in fisheries

Impacts to Pacific halibut from salmon troll fisheries continue to be managed under limits established through the International Pacific Halibut Commission (IPHC) process. Halibut allocations are established annually in the IPHC Area 2A Catch Sharing Plan (e.g., 79 FR 18827). Allocation of halibut to the commercial salmon fishery would not be affected by the Proposed Action; therefore, halibut will not be included in Chapter 4.

Coastal pelagic species, Dungeness crab, shrimp/prawns, and sea cucumbers are not encountered in ocean salmon fisheries. These species would not be affected by the Proposed Action; therefore, they will not be included in Chapter 4.

Impacts to groundfish stocks from commercial salmon troll fisheries continue to be managed as part of the open access groundfish fishery sector under the Groundfish FMP[2]. Recreational fishing for groundfish in the action area also managed under the Groundfish FMP.

Albacore(*Thunnus alalunga*) is harvested by many of the same commercial and recreational fishermen that fish for salmon. Fishery impacts to albacore are managed under the Council's Highly Migratory Species FMP[3].

Throughout the fishing season, commercial and recreational fishers shift effort among salmon, groundfish, and albacore, in response to available fishing opportunities, catch limits, angler demand (recreational fisheries), and changing prices for the species being harvested (commercial fisheries). Due to the variety of factors that can affect effort-shift among these fisheries, it is not possible to quantify and analyze effects from the Proposed Action. As mentioned above, fishery impacts to groundfish and albacore are managed under the Groundfish and Highly Migratory Species FMPs and those impacts are considered in NEPA analyses for those FMPs; therefore, impacts to these species and fisheries will not be addressed in Chapter 4.

3.3 Protected Resources

Protected species include those protected by three Federal laws: the ESA, the Marine Mammal Protection Act (MMPA), and the Migratory Bird Treaty Act (MBTA). This section describes the affected environment relative to protected resources. In some cases there are overlapping regulatory jurisdictions and mechanisms, and in some cases (e.g., salmon) some stocks are protected resources and others are not.

3.3.1 ESA-listed species (except marine mammals and seabirds)

ESA-listed Salmon

Several ESUs of Pacific salmon that are ESA-listed as threatened or endangered occur in the areas where Council-managed ocean salmon fisheries occur; these ESUs are listed in Table 3-3. Steelhead (anadromous *Oncorhynchus mykiss*) are rarely encountered in ocean salmon fisheries; therefore, effects on ESA-listed steelhead are minimal and not discussed further in this EA.

[2] The current Groundfish FMP can be found on the Council's website at: http://www.pcouncil.org/groundfish/fishery-management-plan/

[3] The current HMS FMP can be found on the Council's website at: http://www.pcouncil.org/highly-migratory-species/fishery-management-plan-and-amendments/

Table 3-3. Pacific salmon ESUs listed under the ESA that may be affected by Council-managed ocean salmon fisheries.

ESA-Listed ESUs	Status	Federal Register notice (most recent)
Chinook (*Oncorhynchus tshawytscha*)		
Sacramento River Winter-run	Endangered	76 FR 50447 (8/15/2011)
Snake River Fall-run	Threatened	76 FR 50448 (8/15/2011)
Snake River Spring/Summer-run	Threatened	76 FR 50448 (8/15/2011)
Puget Sound	Threatened	76 FR 50448 (8/15/2011)
Lower Columbia River	Threatened	76 FR 50448 (8/15/2011)
Upper Willamette River	Threatened	76 FR 50448 (8/15/2011)
Upper Columbia River Spring-run	Endangered	76 FR 50448 (8/15/2011)
Central Valley Spring-run	Threatened	76 FR 50447 (8/15/2011)
California Coastal	Threatened	76 FR 50447 (8/15/2011)
Chum (*Oncorhynchus keta*)		
Hood Canal Summer-run	Threatened	76 FR 50448 (8/15/2011)
Columbia River	Threatened	76 FR 50448 (8/15/2011)
Coho (*Oncorhynchus kisutch)*		
Central California Coastal	Endangered	76 FR 50447 (8/15/2011)
Southern Oregon/Northern California Coastal	Threatened	76 FR 50447 (8/15/2011)
Oregon Coastal	Threatened	76 FR 50447 (8/15/2011)
Lower Columbia River	Threatened	76 FR 50447 (8/15/2011)
Sockeye (*Oncorhynchus nerka*)		
Snake River	Endangered	76 FR 50448 (8/15/2011)
Ozette Lake	Threatened	76 FR 50448 (8/15/2011)

NMFS issues biological opinions on the impacts of Council-managed salmon fisheries on ESA-listed salmon. Based on those biological opinions, NMFS provides guidance to the Council during the pre-season planning process for setting annual management measures for ocean salmon fisheries. This guidance addresses allowable impacts on ESA-listed salmon. The Council structures fisheries to meet those allowable impacts. The only ESA-listed salmon that would be affected by the Proposed Action is LCR coho; therefore, the other ESA-listed salmon will not be discussed in Chapter 4.

Eulachon

The southern Distinct Population Segment (DPS) of eulachon (*Thaleichthys pacificus*) was listed as threatened under the ESA in 2010 (75 FR 13012, March 18, 2010). Eulachon are found in the eastern north Pacific Ocean from northern California to southwest Alaska and into the southeastern Bering Sea. The eulachon southern DPS is defined from the Mad River in northern California, north to the Skeena River in British Columbia. Eulachon are an anadromous fish, and the adults migrate from the ocean to freshwater streams where they spawn from late winter through early summer. The offspring hatch and migrate back to the ocean to forage until maturity. Once juvenile eulachon enter marine waters, they move from shallow nearshore areas to deeper areas over the continental shelf. Eulachon are planktivorous (Gustafson et al. 2010) and are not encountered in Council-managed ocean salmon fisheries, which use baited hook and line gear. Eulachon are only occasionally preyed upon by Pacific

salmon (Gustafson et al. 2010). There would be no effects on eulachon from the Proposed Action; therefore, eulachon will not be discussed further in this EA.

Green Sturgeon

The southern DPS of North American green sturgeon (*Acipenser medirostris*) was listed as threatened under the ESA in 2006 (71 FR 17757, April 7, 2006). The North American green sturgeon southern DPS is defined as coastal and Central Valley populations, south of the Eel River in California. Green sturgeon are not encountered in Council-managed ocean salmon fisheries; therefore, there would be no expected impacts to green sturgeon from the proposed action and green sturgeon will not be discussed further in this EA.

Sea Turtles

Four species of sea turtles are known to be present in the west coast EEZ: leatherback (*Dermochelys coriacea*), loggerhead (*Caretta caretta*), olive ridley (*Lepidochelys olivacea*), and green (*Chelonia mydas*). All four are listed as endangered under the ESA. Leatherbacks and loggerheads are regular visitors to areas coincident with the Pacific Coast salmon fishery, but olive ridley and green turtles are less predictably present (PFMC 2013). Sea turtles are not encountered in Council-managed ocean salmon fisheries, likely because the fishery only uses hook and line gear. Sea turtles will not be affected by the Proposed Action; therefore, they will not be discussed further in this EA.

3.3.2 Marine Mammals

ESA-listed marine mammal species that co-occur with Council-managed salmon fisheries include Guadalupe fur seal (not in the area affected by this action), southern sea otter, northern sea otter, and Southern Resident killer whale (SRKW). Among the ESA-listed marine mammals, only the SRKW is known to interact with Pacific salmon. There is evidence suggesting salmon abundance in Puget Sound may correlate with killer whale population growth rate (Hillborn et al. 2012); however, in 1999 NMFS consulted on the effects of the ocean salmon fisheries on the SRKW and concluded that Council-managed salmon fisheries were not likely to jeopardize these whales. Table 3-4 displays ESA-listed marine mammals that occur in west coast marine waters and their listing status.

Table 3-4. ESA-listed marine mammals that may occur in the action area.

Species	ESA listing
Whales	
Humpback (*Megaptera novaeangliae*)	Endangered
Sei (*Balaenoptera borealis*)	Endangered
North Pacific Right (*Eubalaena japonica*)	Endangered
Blue whale (*Balaenoptera musculus*)	Endangered
Fin whale (*Balaenoptera physalus)*	Endangered
Sperm whale (*Physter macrocephalus*)	Endangered
Southern Resident Killer whale (*Orcinus orca*)	Endangered
Other marine mammals	
Southern sea otter (*Enhydra lutris nereis*)	Threatened
Northern sea otter (*Enhydra lutris kenyoni*)	Threatened

A number of non-ESA-listed marine mammals may also occur in the action area, these include: northern fur seal (*Callorhinus ursinus*), California sea lion (*Zalophus californianus)*, Steller sea lion (*Eumetopias jubatus*), harbor seal (*Phoca vitulina*), northern elephant seal (*Mirounga angustirostris*), bottlenose dolphin (*Tursiops truncatus*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), short-beaked common dolphin (*Delphinus delphis*), harbor porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), and minke whale (*Balaenoptera acutorostrata*). These species, like all marine mammals, are protected under the MMPA. The non-ESA-listed marine mammal species that are known to interact with ocean salmon fisheries are California sea lion and harbor seals, both species will feed on salmon, when available, and have been documented preying on hooked salmon in commercial and recreational fisheries (Harvey and Weise 1997). All are protected under the MMPA. Ocean salmon fisheries employ hook-and-line gear and are classified under the MMPA as Category III (79 FR 14418, March 14, 2014), indicating there is no record of substantive impacts to marine mammals (MMPA 118(c)(1)). Thus, marine mammals, including SRKW, would be minimally affected, if at all, by the Proposed Action.

3.3.3 Seabirds

Numerous seabird species, as well as raptors, are protected under the MBTA, including several that are present in areas coincident with Pacific salmon. These seabirds include grebes, loons, petrels, albatrosses, pelicans, double-crested cormorants, gulls, terns, auks, and auklets (PFMC 2011). ESA-listed bird species include short-tailed albatross (endangered) and marbled murrelet (threatened).

Interactions with the Pacific salmon fishery typically occur in two ways: when seabirds feed on outmigrating juvenile salmon, and when seabirds are entangled or otherwise interact with fishing gear or activities. Predation on juvenile salmon occurs in the lower Columbia River, as salmon smolts migrate downstream and into marine waters. Two man-made islands, East Sand Island and Rice Island were created using dredge spoils from the Columbia River. The islands have since become occupied by colonies of Caspian terns and double-crested cormorants. In 2010 and 2011, an estimated 19.2 million and 20.5 million (respectively) juvenile salmon were consumed by the double-crested cormorant colony on East Sand Island. These numbers are approximately equal to 18 percent of the entire Columbia River out-migrating salmon for those years (BRNW 2011). Caspian Terns nesting on East Sand Island and Rice Island also consume outmigrating salmonids: 8.1 million salmon smolts in 1997 and 12.4 million in 1998. Although these numbers include steelhead smolts, steelhead are a minority of all salmonids consumed by Caspian terns (Roby *et al*. 2003). Council-area salmon fisheries are managed to meet spawning escapement goals for adult salmon; therefore, as seabird predation is generally limited to juvenile salmon, it is unlikely that the proposed action would have more than a minimal, if any, effect on the availability of juvenile salmon for seabirds.

Council-managed ocean salmon fisheries are limited to hook-and-line tackle. Seabirds are not commonly taken in these fisheries. Seabirds are not likely to be more than minimally affected by the Proposed Action.

3.4 Marine Ecosystem and Fish Habitat

Salmon FMP stocks interact with a number of ecosystems along the Pacific Coast, including the California Current Ecosystem, numerous estuary and freshwater areas and associated riparian habitats. Salmon contribute to ecosystem function as predators on lower trophic level species, as prey for higher trophic level species, and as nutrient transportation from marine ecosystems to inland ecosystems. Because of their wide distribution in both the freshwater and marine environments, Pacific salmon interact with a great variety of habitats and other species of fish, mammals, and birds. An extensive description of the California current ecosystem can be found in the DEIS for groundfish harvest specifications (PFMC and NMFS 2014b). Ocean salmon fisheries are managed for stock-specific levels of escapement to the freshwater ecosystem.

Council managed salmon fisheries use hook and line gear, exclusively. This gear does not touch the ocean floor and does not disturb any habitat features. Therefore, salmon fisheries have no physical impact on habitat.

3.5 Socioeconomic Environment

LCR coho are encountered in Council-managed recreational, commercial, and treaty Indian salmon fisheries from the U.S./Canada border to approximately the Oregon/California border. Detailed information on the economic impacts of Council-managed salmon fisheries is found in the Council's Review of 2013 Ocean Salmon Fisheries (PFMC 2014b), which is incorporated herein by reference.

NOAA's Northwest Fisheries Science Center (NWFSC) has published profiles on West Coast fishing communities (Norman et al. 2007). This report includes social and economic characteristics for 125 fishing communities on the West Coast (of these, 40 communities in Washington and 30 communities in Oregon). The community profiles include sections on: people and place, infrastructure, involvement in West Coast fisheries, and involvement in North Pacific fisheries. This report is incorporated herein by reference.

3.6 Social Impact Assessment

3.6.1 Tourism and recreation

Fishing is an important recreational and tourist activity for many West Coast communities (Norman et al. 2007). Economic benefits to these communities come not only directly from fishing activities, e.g., charter boat fees, licensing, bait, and tackle, but also indirectly, e.g., restaurants, grocery stores, lodging, tourist attractions, and shopping (Norman et al. 2007).

3.6.2 Environmental Justice

The NWFSC has published profiles on West Coast fishing communities (Norman et al. 2007). This report includes demographics and descriptions of community involvement in fisheries.

The Proposed Action was developed through the Council process, including several meetings that were open to the public (see section 1.5). Additionally, West Coast treaty tribes have a representative on the Council, and representatives from the Columbia River Inter-Tribal Fish Commission and the Northwest Indian Fisheries Commission were members of the coho workgroup that developed the alternatives.

3.7 Human Health and Safety

Vessels participating in ocean salmon fisheries are subject to licensing by the states and compliance with U.S. Coast Guard regulations. Nothing in the Proposed Action would affect these requirements, nor would it affect how fishing is conducted. The Proposed Action would have no impact on human health and safety and is not evaluated in Chapter 4.

4.0 Environmental Impacts of Alternatives

This chapter will analyze the environmental impacts of the alternatives on the resources described in Chapter 3, for which there are identifiable impacts. The Proposed Action will have no impact on fish and fisheries other than salmon. In addition to non-ESA-listed salmon, the Proposed Action may have impacts on ESA-listed LCR coho and the socioeconomic environment, which are discussed in the following subsections.

4.1 Alternative 1 – No-action Alternative

4.1.1 Fishery and Fish Resources

In the period from 2005 through 2013, the average (i.e., arithmetic mean) exploitation rate allowed for LCR coho under the existing harvest control rule was 0.153 (Beamesderfer et al. 2014). In all years, impacts to LCN coho were a constraining factor to Council-managed fisheries; however, the same environmental conditions that affect LCR coho productivity also affect other stocks, and harvest impacts to a number of stocks are considered together to shape fisheries. For example, the lowest LCR coho exploitation rate allowed (0.08) was in 2008; however, the stock that most constrained fisheries south of Cape Falcon that year was not LCR coho, but Sacramento River fall Chinook.

Under the No-action Alternative, LCR coho exploitation rates would be expected to remain concentrated in the 0.15 to 0.20 range, with the most frequently applied exploitation rate of 0.15, as in previous years (Table 4-1). At these exploitation rates, mark-selective coho fisheries are usually allowed, but rarely are non-mark-selective coho fisheries allowed.

Table 4-1. LCR coho exploitation rates and the frequency at which they were used in the years 2005 – 2013. These would be expected to be similar under the No-action Alternative.

LCR coho exploitation rate	0.08	0.15	0.20
Frequency of use	11%	67%	22%

The purpose and need for the proposed action included a preliminary goal of targeting a LCR coho exploitation rate of 0.18, which is generally higher than what has been allowed under the existing harvest control rule. Therefore, the two action alternatives are structured to approximately target the 0.18 exploitation rate. As a result, the No-Action Alternative would impose more constraints on the salmon fishery than the other alternatives and have a low magnitude negative impact on the fishery.

This alternative provides a range of exploitation rate options designed to be responsive to the annual productivity of LCR coho. However, fisheries are set annually to meet the stock-specific fisheries impact objectives for all salmon stocks managed under the FMP, some of which may be more constraining on

fisheries than LCR coho in any given year. Therefore, this No-action Alternative would have neither a positive nor negative impact on fish resources, compared to the other analyzed alternatives.

4.1.2 Protected Resources

LCR coho

Under the No-action Alternative, allowable exploitation rates for LCR coho could, in theory, range from 0.08 to 0.45, although it is likely, based on past experience, that they would, in actuality, continue in the 0.08 to 0.20 range, and average 0.153 (Tables 2-6 and 4-1). Under the other two alternatives analyzed in this EA, the annual exploitation rate on LCR coho would be somewhat higher, averaging 0.18; this suggests that the No-action Alternative would have a low, positive impact on LCR coho through a lower average exploitation rate, compared to the action alternatives.

Pinnipeds (California sea lions and harbor seals)

Ocean salmon fisheries employ hook-and-line gear and are classified under the MMPA as Category III (79 FR 14418, March 14, 2014), indicating there is no record of substantive impacts to marine mammals (MMPA 118(c)(1)). Although there are documented cases of pinnipeds, specifically California sea lions and harbor seals, preying on hooked salmon, these interactions are uncommon in Council-area fisheries in the EEZ, three to 200 miles off shore. Because the fishery is generally more affected by constraints other than the LCR control rule, and because the difference between alternatives for the proposed action are too small to significantly change the structure and magnitude of the ocean salmon fishery overall, the No-action Alternative would not affect the frequency of interactions between pinnipeds and the ocean salmon fishery, compared to the other alternatives. Therefore, the No-action Alternative would have neither a positive nor negative impact on pinnipeds, compared to the other analyzed alternatives.

Seabirds

Seabirds, primarily double-crested cormorants and Caspian terns, feed on juvenile salmon outmigrating from fresh water to the marine environment. As ocean salmon fisheries harvest adult salmon and are managed to meet spawning escapement goals, the No-action Alternative would not have any effect on the availability of juvenile salmon for seabirds. Seabirds are not susceptible to being intercepted in Council-managed salmon fisheries, as these fisheries are strictly hook-and-line, not net-based fisheries. Therefore, the No-action Alternative would have neither a positive nor negative impact on seabirds, compared to the other analyzed alternatives.

4.1.3 Socioeconomic Environment

Under the No-action Alternative, the LCR coho exploitation rate would not effect any changes in economic impacts to fishery-dependent communities from what has been experienced since the existing harvest control rule was implemented in 2005. The No-Action Alternative would likely result in constraining fisheries somewhat more than the other alternatives, but only in years that LCR coho is the most limiting stock; therefore, this alternative would be expected to have a negative impact of low magnitude on economic benefits to fishery-dependent communities that would vary year-to-year, but not likely to be significant. There would be no differential impact to minority populations, low-income populations, or Indian tribes.

4.2 Alternative 2 – Council model 5g (Preferred Alternative)

4.2.1 Fishery and Fish Resources

Under the Preferred Alternative, the annual exploitation rate for LCR coho would be concentrated in the 0.18 to 0.23 range, while allowing for exploitation rates up to 0.30 in the event of very high marine survival (Table 4-2). Applying this alternative retroactively to the period 2005 through 2013, the average allowable exploitation rate for LCR coho would be 0.179, compared to 0.153 under the No-action Alternative and 0.183 under Alternative 3 (Table 2-7). In terms of impact to the fishery, the Preferred Alternative would likely allow for more opportunity for non-mark-selective coho retention than the No-action Alternative and would be similar to Alternative 3; however, the Preferred Alternative would likely provide greater opportunity for fisheries that target coho than either of the other two alternatives. Therefore, the Preferred Alternative would have a low, positive impact on the fishery compared with the No-action Alternative and Alternative 3.

This alternative provides a range of exploitation rate options designed to be responsive to the annual productivity of LCR coho. However, fisheries are set annually to meet the stock-specific fisheries impact objectives for all salmon stocks managed under the FMP, some of which may be more constraining on fisheries than LCR coho in any given year. Therefore, this Preferred Alternative would have neither a positive nor negative impact on fish resources, compared to the other analyzed alternatives.

Table 4-2. Alternative 2 (Preferred Alternative). Retrospective frequencies at which LCR coho exploitation rates would have been applied under the Preferred Alternative, based on historical marine survival patterns, from 1974 to 2009. Table adapted from LCN Coho Workgroup (2014). The symbol % means percent.

	Marine Survival Index (based on return of jacks per hatchery smolt)				
	Very Low (≤ 6%)	Low (≤ 8%)	Medium (≤ 17%)	High (≤ 40%)	Very High (> 40%)
LCR coho exploitation rate	0.10	0.15	0.18	0.23	0.30
Retrospective frequency	10%	12%	55%	21%	1%

4.2.2 Protected Resources

LCR coho

Under the Preferred Alternative, allowable exploitation rates for LCR coho would be concentrated in the 0.18 to 0.23 range, and average 0.179, somewhat higher than under the No-action Alternative and similar to Alternative 3. However, the impact of this alternative on LCR coho would likely be neutral compared with the other alternatives, as the allowable exploitation rate would be adjusted annually, based on the productivity of this ESA-listed stock, to support its recovery.

Pinnipeds (California sea lions and harbor seals)

Ocean salmon fisheries employ hook-and-line gear and are classified under the MMPA as Category III (79 FR 14418, March 14, 2014), indicating there is no record of substantive impacts to marine mammals (MMPA 118(c)(1)). Although there are documented cases of pinnipeds, specifically California sea lions and harbor seals, preying on hooked salmon, these interactions are uncommon in Council-area fisheries in the EEZ, three to 200 miles off shore. Because the fishery is generally more affected by constraints other than the LCR control rule, and because the difference between alternatives for the proposed action are too small to significantly change the structure and magnitude of the ocean salmon fishery overall, the Preferred Alternative would not affect the frequency of interactions between pinnipeds and the ocean salmon fishery, compared to the other alternatives. The Preferred Alternative would have neither a positive nor negative impact on pinnipeds, compared to the other analyzed alternatives.

Seabirds

Seabirds, primarily double-crested cormorants and Caspian terns, feed on juvenile salmon outmigrating from fresh water to the marine environment. As ocean salmon fisheries harvest adult salmon and are managed to meet spawning escapement goals, the Preferred Alternative would not have any effect on the availability of juvenile salmon for seabirds. Seabirds are not susceptible to being intercepted in Council-managed salmon fisheries, as these fisheries are strictly hook-and-line, not net-based fisheries. Therefore, the Preferred Alternative would have neither a positive nor negative impact on seabirds, compared to the other analyzed alternatives.

4.2.3 Socioeconomic Environment

Under the Preferred Alternative, the annual exploitation rate for LCR coho would be concentrated in the 0.18 to 0.23 range, while allowing for exploitation rates up to 0.30 in the event of very high marine survival (Table 4-2). The Preferred Alternative would likely allow for more opportunity for non-mark-selective coho retention than the No-action Alternative and would be similar to Alternative 3; however, the Preferred Alternative would likely provide greater opportunity for fisheries that target coho than either of the other two alternatives. Therefore, the Preferred Alternative would have a moderately positive economic benefit compared to the other alternatives in years that LCR coho is the most constraining stock in the action area. However, in many years, managing fishery impacts to other stocks obscures the effects of the LCR coho exploitation rate. For example, in years when the allowable exploitation rate for LCR coho was 0.20, overall income related to the salmon fisheries was reduced compared to years when the LCR coho exploitation rate was 0.15 (2006, 2010, 2011, 2012, and 2013), due to constraints on the commercial fisheries to limit impacts to Klamath River and Sacramento River fall Chinook stocks. Income related to recreational fisheries did have a corresponding increase when the exploitation rate for LCR coho was raised. Under the Preferred Alternative, fishery dependent communities may experience a low, positive impact, compared with the other alternatives, but only in years that LCR coho are the most constraining stock. It is likely that recreational fisheries, particularly those north of Cape Falcon, would be most affected by any change in LCR coho exploitation rate, but it is unlikely that these positive impacts would result in a significant change in economic benefits compared to the other alternatives.

There is no evidence to suggest that there would be differential impact to minority populations, low-income populations, or Indian tribes under the Preferred Alternative compared to the other alternatives.

4.3 Alternative 3 – Council model 5b

4.3.1 Fishery and Fish Resources

Under Alternative 3, the annual exploitation rate for LCR coho would be concentrated in the 0.15 to 0.20 range (compared with 0.18 to 0.23 under the Preferred Alternative), while allowing occasional exploitation rates up to 0.30 (Table 4-3). Applying this alternative retroactively to the period 2005 through 2013, the average allowable exploitation rate for LCR coho would be 0.183, compared to 0.153 under the No-action Alternative and 0.179 under the Preferred Alternative (Table 2-7). In terms of impact to the fishery, Alternative 3 would likely allow for more opportunity for non-mark-selective coho retention (requires exploitation rate range of 0.10 to 0.20, see Table 3-2) than the No-action Alternative and would be similar to the Preferred Alternative. Alternative 3 would provide more opportunity for fisheries that target coho (requires exploitation rate range of 0.20 to 0.25, see Table 3-2) than the No-action Alternative, but somewhat less than the Preferred Alternative. Therefore, Alternative 3 would have a low, positive impact on the fishery compared with the No-action Alternative, and a very slightly negative impact on the fishery compared with the Preferred Alternative.

This alternative provides a range of exploitation rate options designed to be responsive to the annual productivity of LCR coho. However, fisheries are set annually to meet the stock-specific fisheries impact objectives for all salmon stocks managed under the FMP, some of which may be more constraining on fisheries than LCR coho in any given year. Therefore, Alternative 3 would have neither a positive nor negative impact on fish resources, compared to the other analyzed alternatives.

Table 4-3. Alternative 3. Retrospective frequencies at which LCR coho exploitation rates would have been applied under Alternative 3, based on historical marine survival patterns, from 1974 to 2009. Table adapted from LCN Coho Workgroup (2014). The symbol % means percent.

	Marine Survival Index (based on return of jacks per hatchery smolt)				
	Very Low (≤ 5.9%)	Low (≤ 10.9%)	Medium (≤ 23%)	High (≤ 28%)	Very High (> 28%)
LCR coho exploitation rate	0.10	0.15	0.20	0.25	0.30
Retrospective frequency	10%	35%	45%	5%	5%

4.3.2 Protected Resources

LCR coho

Under Alternative 3, allowable exploitation rates for LCR coho would be concentrated in the 0.15 to 0.20 range, which is the same as the No-action Alternative, and slightly lower than the Preferred Alternative. However, the impact of this alternative on LCR coho would likely be neutral compared with the other

alternatives, as the allowable exploitation rate would be adjusted annually, based on the productivity of this ESA-listed stock, to support its recovery.

Pinnipeds (California sea lions and harbor seals)

Ocean salmon fisheries employ hook-and-line gear and are classified under the MMPA as Category III (79 FR 14418, March 14, 2014), indicating there is no record of substantive impacts to marine mammals (MMPA 118(c)(1)). Although there are documented cases of pinnipeds, specifically California sea lions and harbor seals, preying on hooked salmon, these interactions are uncommon in Council-area fisheries in the EEZ, three to 200 miles off shore. Because the fishery is generally more affected by constraints other than the LCR control rule, and because the difference between alternatives for the proposed action are too small to significantly change the structure and magnitude of the ocean salmon fishery overall, Alternative 3 would not affect the frequency of interactions between pinnipeds and the ocean salmon fishery, compared to the other alternatives. Alternative 3 would have neither a positive nor negative impact on pinnipeds, compared to the other analyzed alternatives.

Seabirds

Seabirds, primarily double-crested cormorants and Caspian terns, feed on juvenile salmon outmigrating from fresh water to the marine environment. As ocean salmon fisheries harvest adult salmon and are managed to meet spawning escapement goals, the No-action Alternative would not have any effect on the availability of juvenile salmon for seabirds. Seabirds are not susceptible to being intercepted in Council-managed salmon fisheries, as these fisheries are strictly hook-and-line, not net-based fisheries. Therefore, Alternative 3 would have neither a positive nor negative impact on seabirds, compared to the other analyzed alternatives.

4.3.3 Socioeconomic Environment

Under Alternative 3, the annual exploitation rate would be concentrated in the 0.15 to 0.20 range, while allowing occasional exploitation rates up to 0.30 (Table 4-3). Alternative 3 would likely allow for more opportunity for non-mark-selective coho retention than the No-action Alternative and would be similar to the Preferred Alternative. Alternative 3 would provide more opportunity for fisheries that target coho than the No-action Alternative, but somewhat less than the Preferred Alternative. Therefore, Alternative 3 would have a moderately positive economic benefit compared to the No-action Alternative, and a slight negative economic benefit compared to the Preferred Alternative. However, as explained above (see section 4.2.3), managing fishery impacts to other stocks can obscure the effects of the LCR coho exploitation rate on the fishery and its economic benefits. Under Alternative 3, fishery dependent communities may experience a moderately positive economic impact compared to the No-action Alternative and very slightly negative economic impact compared to the Preferred Alternative, but these impacts would only occur in years that LCR coho are the most constraining stock. It is likely that recreational fisheries, particularly those north of Cape Falcon, would be most affected by any change in LCR coho exploitation rate, but it is unlikely that these impacts would result in a significant change in economic benefits compared to the No-action Alternative.

There is no evidence to suggest that there would be differential impact to minority populations, low-income populations, or Indian tribes under Alternative 3 compared to the other alternatives.

4.4 Cumulative Effects and Climate Change

A cumulative effects analysis is required by the Council on Environmental Quality (CEQ) (40 CFR part 1508.7). The purpose of a cumulative effects analysis is to consider the combined effects of many actions on the human environment over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective, but rather, the intent is to focus on those effects that are truly meaningful. A formal cumulative impact assessment is not necessarily required as part of an EA under NEPA as long as the significance of cumulative impacts has been considered (U.S. EPA 1999). The following addresses the significance of the expected cumulative impacts as they relate to the Pacific Coast salmon fishery.

4.4.1 Consideration of the Affected Resources

The affected resources that relate to the Lower Columbia River coho are described in Chapter 3. The significance of the cumulative effects will be discussed in relation to these affected resources listed below.

- Fishery and Fish Resources.
- Protected Resources.
- Socioeconomic Environment.

4.4.2 Geographic Boundaries

The analysis focuses on actions related to Council-managed ocean salmon fisheries that impact LCR coho. These fisheries occur north of California; therefore, the core action area is the exclusive economic zone (EEZ), from three to 200 miles offshore, off the coasts of the states of Washington and Oregon (Section 3.1) as well as the ports in Washington and Oregon that receive landings from the ocean salmon fisheries.

4.4.3 Temporal Boundaries

The temporal scope of past and present actions for the affected resources is primarily focused on actions that have occurred after framework FMP implementation (1984) and more importantly, since implementation of the current LCR coho harvest control rule (2005). The temporal scope of future actions for all affected resources extends about five years into the future. This period was chosen because the dynamic nature of resource management and lack of information on future projects make it very difficult to predict impacts beyond this timeframe with any certainty.

4.4.4 Past, Present, and Reasonably Foreseeable Future Actions

Fishery Actions

The Council sets management measures for ocean salmon fisheries annually based on stock forecasts and in accordance with conservation objectives set in the FMP and guidance provided by NMFS for managing impacts to ESA-listed stocks. As noted earlier, fisheries outside of the Council's jurisdiction also impact LCR coho and other stocks affected by the Council-area salmon fishery. The Council considers fisheries managed by the states and treaty Indian tribes in the North of Falcon management process and Columbia River fisheries managed under U.S. v. Oregon Management Plan, as well as obligations for fisheries off Alaska and Canada under the Pacific Salmon Treaty (PFMC and NMFS 2014b). Additionally, the Council and NMFS manage ocean salmon fisheries inseason to keep fisheries impacts within the constraints set preseason. The Council also conducts annual methodology reviews to improve models and other tools for assessing salmon stocks.

Non-Fishing Related Actions

Non-fishing activities in the marine environment can introduce chemical pollutants and sewage; and result in changes in water temperature, salinity, dissolved oxygen, and suspended sediment which poses a risk to the affected resources. Human-induced non-fishing activities tend to be localized in nearshore areas and marine project areas. When these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability tends to reduce the tolerance of affected species to the impacts of fishing effort. Mitigation through regulations that would reduce fishing effort could negatively impact human communities. The overall impact to the affected species and their habitats on a population level is unknown, but likely neutral to low negative, since a large portion of these species have a limited or minor exposure to the localized non-fishing perturbations.

For many of the proposed non-fishing activities to be permitted by other Federal agencies, those agencies would examine the potential impacts on the affected resources. The Magnuson-Stevens Act (50 CFR 600.930) imposes an obligation on other Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. The eight fishery management councils engage in the review process by making comments and recommendations on any Federal or state action that may affect habitat, including EFH, for their managed species and by commenting on actions likely to substantially affect habitat, including EFH. In addition, under the Fish and Wildlife Coordination Act (Section 662), "whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the U.S., or by any public or private agency under Federal permit or license, such department or agency first shall consult with the U.S. Fish and Wildlife Service (USFWS), Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular state wherein the" activity is taking place. This act provides another avenue for review of actions by other Federal and state agencies that may impact resources that NMFS manages in the

reasonably foreseeable future. In addition, NMFS and the USFWS share responsibility for implementing the ESA. ESA requires NMFS to designate "critical habitat" for any species it lists under the ESA (i.e., areas that contain physical or biological features essential to conservation, which may require special management considerations or protection) and to develop and implement recovery plans for threatened and endangered species. The ESA provides another avenue for NMFS to review actions by other entities that may impact endangered and protected resources whose management units are under NMFS' jurisdiction.

The effects of climate on the biota of the California Current ecosystem have been recognized for some time. The El Niño/Southern Oscillation (ENSO) is widely recognized to be the dominant mode of inter-annual variability in the equatorial Pacific, with impacts throughout the rest of the Pacific basin and the globe. During the negative (El Niño) phase of the ENSO cycle, jet stream winds are typically diverted northward, often resulting in increased exposure of the Pacific Coast of the U.S. to subtropical weather systems. The impacts of these events to the coastal ocean generally include reduced upwelling winds, deepening of the thermocline, intrusion of offshore (subtropical) waters, dramatic declines in primary and secondary production, poor recruitment, reduced growth and survival of many resident species (such as salmon and groundfish), and northward extensions in the range of many tropical species. Concurrently, top predators such as seabirds and pinnipeds often exhibit reproductive failure. In addition to inter-annual variability in ocean conditions, the North Pacific seems to exhibit substantial inter-decadal variability, which is referred to as the Pacific (inter) Decadal Oscillation (PDO).

Within the California Current itself, Mendelssohn, et al. (2003) described long-term warming trends in the upper 50 to 75 m of the water column. Recent paleoecological studies from marine sediments have indicated that 20th century warming trends in the California Current have exceeded natural variability in ocean temperatures over the last 1,400 years. Statistical analyses of past climate data have improved our understanding of how climate has affected North Pacific ecosystems and associated marine species productivities. Our ability to predict future impacts on the ecosystem stemming from climate forcing events remains poor at best.

4.4.5 Magnitude and Significance of Proposed Action

In determining the magnitude and significance of the cumulative effects, the additive and synergistic effects of the proposed action, as well as past, present, and future actions, must be taken into account. The following section presents the effects of past, present, and reasonably foreseeable future actions on each of the managed resources. This is followed by a discussion on the synergistic effects of the proposed action, as well as past, present, and reasonably foreseeable future actions. These effects are summarized in Table 4-5.

4.4.5.1 Fishery and Fish Resources

Past, present, and reasonably foreseeable future actions that affect the salmon fishery and fish resources are considered annually when the Council sets management measures for ocean salmon fisheries based on stock forecasts and in accordance with conservation objectives set in the FMP and guidance provided by NMFS for managing impacts to ESA-listed stocks. The Council also considers

fisheries managed by the states and treaty Indian tribes in the North of Falcon management process and Columbia River fisheries managed under U.S. v. Oregon Management Plan, as well as obligations under the Pacific Salmon Treaty (PFMC and NMFS 2014b). Additionally, the Council and NMFS manage ocean salmon fisheries inseason to keep fisheries impacts within the constraints set preseason. The Council also conducts annual methodology reviews to improve models and other tools for assessing salmon stocks. Therefore, the magnitude and significance of effects of the proposed action on the salmon fishery and fish resources are expected to be low positive, and neutral, respectively.

4.4.5.2 Protected Resources – LCR coho

Past, present, and foreseeable future actions that affect ESA-listed LCR coho are considered annually when the Council sets management measures for ocean salmon fisheries; NMFS provides guidance for managing impacts to ESA-listed stocks based on biological opinions and stock productivity information provided by the states and analyzed by the STT. Fishery management actions have been taken since at least 2005 to manage impacts on LCR coho, and the states have developed information to better inform fishery management decisions. Therefore, the magnitude and significance of effects of the proposed action on ESA-listed LCR coho are expected to be neutral and not significant.

4.4.5.3 Socioeconomic Environment

Each year the Council evaluates the socioeconomic impact of past salmon fisheries in the stock assessment and fishery evaluation document (e.g., PFMC 2014b) and also evaluates foreseeable future impacts in the annual preseason reports; these documents are also used as the basis for the NEPA analysis for the annual management measures. Impacts of the Preferred Alternative on the socioeconomic environment is described in section 4.2.3. The magnitude and significance of effects of the proposed action on the socioeconomic environment are expected to be low, positive, and not significant.

4.4.6 Summary of Cumulative Impacts

The environmental impacts of the analyzed alternatives for the proposed action were described in sections 4.1 through 4.3, these are summarized in Table 4-4.

Table 4-4. Comparison of environmental impacts among analyzed alternatives for the proposed action.

Alternative	Fishery	Fish Resources	Protected Resources	Socioeconomic Environment
1. No-action Alternative	Low Negative	Neutral	Neutral	Low Negative
2. Preferred Alternative	Low Positive	Neutral	Neutral	Low Positive
3. Council model 5b	Low Positive	Neutral	Neutral	Low Positive

Alternative 2 is the Preferred Alternative (see Chapter 2). The magnitude and significance of the cumulative effects include the additive and synergistic effects of the proposed action, as well as past,

present, and reasonably foreseeable future actions, and are included in the discussion throughout this section.

Impacts of the proposed action on the salmon fishery and fish resources are a function of the productivity of LCR coho. The Council manages ocean salmon fisheries through an intensive preseason analysis process and inseason management to shape salmon fisheries impacts on salmon stocks within the parameters of the FMP conservation measures and ESA requirements. The Preferred Alternative is expected to have a positive impact on the salmon fishery through increased opportunity for harvest of coho salmon through adopting a new harvest control rule that is based on the latest scientific information that reduces the uncertainty of the productivity of LCR coho allowing less constrained fisheries in areas that LCR coho occur compared to the No-action Alternative. Taking the expected impacts of the Preferred Alternative into account in addition to past, present, and reasonably foreseeable future actions, no significant cumulative impacts are expected on the fishery and fish resources.

Relative to ESA-listed LCR coho, the Preferred Alternative provides a harvest control rule that is responsive to both marine survival and projected adult escapement, this harvest control rule would be used to manage impacts to LCR coho consistent with the requirements of the ESA. Taking the expected impacts of the Preferred Alternative into account in addition to past, present, and reasonably foreseeable future actions, no significant cumulative impacts are expected on ESA-listed LCR coho.

The Preferred Alternative would result in higher allowable exploitation rates on LCR coho, which would reduce constraints on some fisheries in years that LCR coho was a limiting stock; this would be expected to have a positive impact on fishery dependent communities. Given inter-annual variations in productivity of the numerous salmon stocks managed in Council-area fisheries, the Preferred Alternative does not ensure positive economic impacts in all years, nor do the other alternatives. Taking the expected impacts of the preferred alternative into account in addition to past, present, and reasonably foreseeable future actions, no significant cumulative impacts are expected on the socioeconomic environment.

Table 4-5. Magnitude and significance of the cumulative effects; the additive and synergistic effects of the proposed action, as well as past, present, and reasonably foreseeable future actions.

Affected Resources	Magnitude of Net Impact of Past, Present, and Reasonably Foreseeable Future Actions	Magnitude of the Impact of the Proposed Action (Preferred Alternative)	Significant Cumulative Effects
Fishery and Fish Resources	Low Positive	Low Positive	None
ESA-listed LCR Coho	Low Positive	Neutral	None
Socioeconomics	Low Positive	Low Positive	None

5.0 Consistency With Other Applicable Law

5.1 Magnuson-Stevens Fishery Conservation and Management Act (MSA)

The MSA provides parameters and guidance for Federal fisheries management. Overarching principles for fisheries management are found in the MSA's National Standards, which articulate a broad set of policies governing fisheries management. In crafting fisheries management regimes, the Councils and NMFS must balance their recommendations to meet these applicable national standards.

As discussed previously, the purpose of this action is to determine if a revised harvest policy can be developed that simplifies the existing harvest control rules and optimizes fishing strategies consistent with acceptable conservation risk tolerances in coordination with the applicable state and Federal recovery plans, including the preliminary goal of 18 percent exploitation rate on LCR coho.

National Standard 1 requires that conservation management measures shall prevent overfishing while achieving on a continuing basis, the optimum yield from each fishery for the United States fishing industry. The alternatives analyzed in this EA are consistent with National Standard 1.

National Standard 2 requires the use of the best available scientific information. The Council's LCR Coho Workgroup developed alternatives for the Proposed Action using data developed in recent years by the states of Oregon and Washington. The information used to inform the Proposed Action represents the best available scientific information for the affected populations of coho. The alternatives analyzed in this EA are consistent with National Standard 2.

National Standard 6 requires conservation objectives and management measures to take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches. All alternatives in this EA are consistent with National Standard 6 as each provides a matrix that takes into account annual variations in LCR coho productivity, additionally the FMP allows for inseason management of Council-area salmon fisheries to meet conservation objectives and preseason management objectives.

National Standard 8 requires that conservation and management measures shall, consistent with the conservation requirements of the MSA, take into account the importance of fishery resources to fishing communities in order to "(A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities." Alternatives 2 (Preferred Alternative) and 3 allow for somewhat less restrictive fisheries than the No-action Alternative, based on impacts to LCR coho while providing a harvest control rule that is responsive to the conservation needs of that ESA-listed stock.

National Standard 9 requires the reduction, to the extent practicable, of bycatch or bycatch mortality. Alternatives 2 (Preferred Alternative) and 3 may minimally reduce bycatch mortality. These alternatives may allow more retention of coho in the action area, thus reducing hooking mortality on coho that, if caught, would have to be released under the No-action Alternative. .

National Standard 10 requires, to the extent practicable, conservation and management measures to promote the safety of human life at sea. The Alternatives in this EA are not expected to have significant effects on season structure or other factors that would increase risks to salmon fishermen. All alternatives in this EA are consistent with National Standard 10.

5.2 Coastal Zone Management Act

Section 307(c)(1) of the Federal Coastal Zone Management Act (CZMA) requires all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. The alternatives in this EA would be implemented in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved coastal zone management programs of Washington, Oregon, and California. This determination will be submitted to the responsible state agencies for review under section 307(c)(1) of the CZMA, and reviewed for consistency with the Washington, Oregon, and California coastal zone management programs.

Under the CZMA, each state develops its own coastal zone management program, which is then submitted for Federal approval. This has resulted in programs which vary widely from one state to the next. None of the alternatives are expected to affect any state's coastal management program.

5.3 Endangered Species Act

Section 7(a)(2) of the ESA requires that Federal agencies ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat. In addition, Section 7(a)(3) of the ESA requires that Federal agencies consult with NMFS and the U.S. Fish and Wildlife Service on any action authorized, funded, or carried out by such agency that may affect a species listed under the ESA or their designated critical habitat.

The Proposed Action would identify a harvest control rule to manage impacts to LCR coho. This action is not expected to have adverse effects on any critical habitat. Fisheries conducted according to this control rule will impact individual LCR coho; however, as discussed above, the control rule is intended to limit impacts to LCR coho to avoid jeopardy. NMFS intends to reinitiate consultation on Council-managed salmon fisheries impacts on LCR coho, the Proposed Action would not be implemented unless, and until, a biological opinion resulting from that consultation concludes that the Proposed Action is not likely to jeopardize LCR coho. This consultation is expected to be completed prior to implementing 2015 ocean salmon fisheries on May 1, 2015.

5.4 Marine Mammal Protection Act

The MMPA of 1972 is the principle Federal legislation that guides marine mammal species protection and conservation policy in the United States. Under the MMPA, NMFS is responsible for the management and conservation of 153 stocks of whales, dolphins, porpoise, as well as seals, sea lions, and fur seals; while the US Fish and Wildlife Service is responsible for walrus, sea otters, and the West Indian manatee.

Off the West Coast, Guadalupe fur seal (not in the affected area), and northern and southern sea otter are listed as threatened under the ESA. Sperm whale (California/Oregon/Washington stock), humpback whale (WA, OR, CA, Mexico stock), blue whale eastern north Pacific stock, and Fin whale (California/Oregon/Washington stock) are listed as depleted under the MMPA. Any species listed as endangered or threatened under the ESA is automatically considered depleted under the MMPA.

The commercial salmon troll fisheries off the West Coast are classified as Category III fisheries, indicating a remote or no likelihood of causing incidental mortality or serious injury to marine mammals (79 FR 14418, March 14, 2014). Recreational salmon fisheries are assumed to have similar impacts as they use similar gear and techniques. The Alternatives considered in this EA are not expected to have significant impacts to marine mammals (see section 3.3.2 in this EA).

5.5 Migratory Bird Treaty Act and EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds)

The Migratory Bird Treaty Act of 1918 was designed to end the commercial trade of migratory birds and their feathers that, by the early years of the 20th century, had diminished populations of many native bird species. The act states that it is unlawful to take, kill, or possess migratory birds and their parts (including eggs, nests, and feathers) and is a shared agreement between the United States, Canada, Japan, Mexico, and Russia to protect a common migratory bird resource. The Migratory Bird Treaty Act prohibits the directed take of seabirds, but the incidental take of seabirds does occur. The Proposed Action does not directly affect any seabirds protected by the Migratory Bird Treaty Act (see section 3.3.3 of this EA).

5.7 Paperwork Reduction Act

The purposes of the Paperwork Reduction Act (PRA) are to minimize the burden of information collection by the Federal Government on the public; maximize the utility of any information thus collected; improve the quality of information used in Federal decision making, minimize the cost of collection, use and dissemination of such information; and improve accountability. The PRA requires Federal agencies to obtain clearance from the Office of Management and Budget before collecting information. This clearance requirement is triggered if certain conditions are met. “Collection of information” is defined broadly. In summary it means obtaining information from third parties or the public by or for an agency through a standardized method imposed on 10 or more persons. Collection of information need not be mandatory to meet the trigger definition. Even information collected by a third party, if at the behest of a Federal agency, may trigger the clearance requirement. Within NMFS the Office of the Chief Information Officer is responsible for PRA compliance. Obtaining clearance can take up to 9 months and is one aspect of NMFS review and approval of Council decisions.

The alternatives in this EA do not include collection of information from sources or of types not already present in the FMP and salmon regulations.

5.8 EO 12898 (Environmental Justice)

Executive Order 12898 obligates Federal agencies to identify and address “disproportionately high adverse human health or environmental effects of their programs, policies, and activities on minority

and low-income populations in the United States" as part of any overall environmental analysis associated with an action. NOAA guidance, NAO 216-6, at 7.02, states that "consideration of Executive Order 12898 should be specifically included in the NEPA documentation for decision making purposes." Agencies should also encourage public participation "especially by affected communities" as part of a broader strategy to address environmental justice issues.

The environmental justice analysis must first identify minority and low-income groups that live in the project area and may be affected by the action. Typically, census data are used to document the occurrence and distribution of these groups. Agencies should be cognizant of distinct cultural, social, economic or occupational factor that could amplify the adverse effects of the Proposed Action. (For example, if a particular kind of fish is an important dietary component, fishery management actions affecting the availability or price of that fish could have a disproportionate effect.) In the case of Indian tribes, pertinent treaty or other special rights should be considered. Once communities have been identified and characterized, and potential adverse impacts of the alternatives are identified, the analysis must determine whether these impacts are disproportionate. Because of the context in which environmental justice developed, health effects are usually considered and three factors may be used in an evaluation: whether the effects are deemed significant, as the term is employed by NEPA; whether the rate or risk of exposure to the effect appreciably exceeds the rate for the general population or some other comparison group; and whether the group in question may be affected by cumulative or multiple sources of exposure. If disproportionately high adverse effects are identified, mitigation measures should be proposed. Community input into appropriate mitigation is encouraged.

The Proposed Action is not expected to affect minority and low-income communities, because it does not directly affect the manner in which fisheries are conducted; the Proposed Action identifies a harvest control rule for LCR coho to be considered in a biological opinion under section 7 of the ESA that would be used to provide guidance to the Council in setting annual management measures for ocean salmon fisheries. Fisheries conducted under the FMP are not expected to disproportionally affect minority and low-income communities. West Coast Indian tribes are part of the Council's decision-making process on salmon management issues, and tribes with treaty rights to salmon, groundfish, or halibut have a seat on the Council. Available demographic data detailed in Norman et al. (2007) show that coastal counties where fishing communities are located are variable in terms of social indicators like income, employment, and race and ethnic composition. As a result, the alternatives are not expected to have notable effects on fishing communities in general, nor on minority and low income groups in particular.

5.9 EO 13132 (Federalism)

Executive Order 13132 enumerates eight "fundamental federalism principles." The first of these principles states "Federalism is rooted in the belief that issues that are not national in scope or significance are most appropriately addressed by the level of government closest to the people." In this spirit, the Executive Order directs agencies to consider the implications of policies that may limit the scope of or preempt states' legal authority. Preemptive action having such "federalism implications" is subject to a consultation process with the states; such actions should not create unfunded mandates for the states; and any final rule published must be accompanied by a "federalism summary impact statement."

The Council and process offers many opportunities for states and Indian tribes (through their agencies, Council appointees, consultations, and meetings) to participate in the formulation of management frameworks and management measures implementing the framework. This process encourages states and tribes to institute complementary measures to manage fisheries under their jurisdiction that may affect federally managed stocks.

The Proposed Action would not have federalism implications subject to Executive Order 13132.

5.10 EO 13175 (Consultation and Coordination with Indian Tribal Government)

Executive Order 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes.

The Secretary recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. At Section 302(b)(5), the Magnuson-Stevens Act reserves a seat on the Council for a representative of an Indian tribe with Federally-recognized fishing rights from California, Oregon, Washington, or Idaho. Through the tribal representative on the Council, the Tribes have the opportunity to exercise this role. The Proposed Action was developed through the Council process. Therefore, the Proposed Action is consistent with EO 13175.

5.11 Regulatory Flexibility Act

The purpose of the Regulatory Flexibility Act (RFA) is to relieve small businesses, small organizations, and small governmental entities of burdensome regulations and record-keeping requirements. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities. The RFA emphasizes predicting impacts on small entities as a group distinct from other entities and the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action. An initial regulatory flexibility analysis (IRFA) is conducted unless it is determined that an action will not have a “significant economic impact on a substantial number of small entities.”

The Proposed Action is to adopt a harvest control matrix to be analyzed in a biological opinion conducted under section 7 of the ESA. The biological opinion will be used to develop annual ESA guidance to the Council in developing annual management measures for salmon fisheries. There is no rulemaking associated with the Proposed Action; therefore, the RFA does not apply. Because the RFA does not apply to the Proposed Action no regulatory flexibility analysis will be prepared. The RFA does apply to the annual management measures and the effects of this control rule as applied in those measures will be considered in the analysis on the annual management measures.

5.12 EO 12866 (Regulatory Planning and Review)

EO 12866, Regulatory Planning and Review, was signed on September 30, 1993, and established guidelines for promulgating new regulations and reviewing existing regulations. The EO covers a variety of regulatory policy considerations and establishes procedural requirements for analysis of the benefits and costs of regulatory actions. Section 1 of the EO deals with the regulatory philosophy and principles that were to guide agency development of regulations. It stresses that in deciding whether and how to regulate, agencies should assess all of the costs and benefits across all regulatory alternatives. Based on this analysis, NMFS should choose those approaches that maximize net benefits to society, unless a statute requires another regulatory approach.

The Regulatory Impact Review is designed to determine whether the proposed action could be considered a "significant regulatory action" according to EO 12866. EO 12866 defines a "significant regulatory action", and requires agencies to provide analysis of the costs and benefits of such action and reasonable feasible alternatives. An action may be considered "significant" if it is expected to: 1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with action taken or planned by another agency; 3) materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the EO. Because the Proposed Action is not a regulatory action, to Regulatory Impact Review has been conducted.

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7.0 NEPA Finding of No Significant Impact (FONSI)

National Oceanic and Atmospheric Administration Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a Proposed Action. In addition, the Council on Environmental Quality regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria.

These include:

(1) Can the Proposed Action be reasonably expected to jeopardize the sustainability of any target species that may be affected by the action?

Response: The Proposed Action will not jeopardize the sustainability of any target species because it will be implemented as part of the Council process of setting annual management measures. The Council adopts annual management measures utilizing preseason planning analyses by the Salmon Technical Team (STT) and Scientific and Statistical Committee (SSC) to structure fisheries that are consistent with the MSA, conservation objectives, annual catch limits, accountability measures, control rules, and status determination criteria in the Salmon Fishery Management Plan (FMP). The Salmon FMP conservation objectives are based on the best available science and are intended to prevent overfishing while achieving optimum yield from West Coast salmon fisheries as required by the MSA.

(2) Can the Proposed Action be reasonably expected to jeopardize the sustainability of any non-target species?

Response: This Proposed Action will not result in significant impacts to the sustainability of non-target species. For ESA-listed salmon species, the fisheries are structured such that impacts on listed species are consistent with the applicable ESA consultation standards based on the biological opinions analyzing the impacts on those species, as discussed in response to Question 5 below. For non-salmon species, regulations are in place under the groundfish, highly migratory species, and coastal pelagic species FMPs and the Halibut Act and Area 2A Catch Sharing Plan to limit incidental catch of halibut and other non-salmon species to ensure that impacts to these species are sustainable. These regulations include landing/possession limits, quotas, size limits, gear restrictions, and time/area closures. Encounters of non-target salmonid species (e.g., chum and sockeye salmon, and steelhead) in the ocean salmon fisheries are generally minimal.

(3) Can the Proposed Action be reasonably expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Fishery Conservation and Management Act and identified in FMPs?

Response: The Proposed Action will not cause substantial damage to the ocean or coastal habitats or essential fish habitat based on previous analysis (e.g., Appendix A of FMP Amendment 18). Council area

ocean salmon fisheries are hook-and-line fisheries. Hook-and-line gear does not adversely affect the ocean floor and thus, does not damage ocean or coastal habitats. Nets and bottom contact gear are not permitted in the salmon fishery.

(*4) Can the Proposed Action be reasonably expected to have a substantial adverse impact on public health or safety?*

Response: The Proposed Action would not impact public health or safety because the Proposed Action would be implemented consistent with the Salmon FMP, which has provisions to adjust management measures if unsafe weather affects fishery access.

(5) Can the Proposed Action be reasonably expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

Response: The Proposed Action would not significantly affect any endangered or threatened species or its habitat. Several salmonid species that are potentially caught in the fishery are listed as threatened or endangered under the ESA. NMFS has issued biological opinions addressing the effects of the fishery on all of these species. The Proposed Action would be the subject of such a biological opinion. Annual management measures for ocean salmon fisheries are developed consistent with the biological opinions for these species. In addition, Southern Resident Killer Whales are listed as endangered under the ESA. Annual management measures are developed consistent with ESA Section 7 consultation on the Effects of the Pacific Coast Salmon Plan on the Southern Resident Killer Whale Distinct Population Segment (SRKW). This consultation, dated May 5, 2009, concluded that fisheries conducted under the Salmon FMP were not likely to jeopardize SRKW or adversely modify its critical habitat.

Ocean salmon fisheries are classified under the Marine Mammal Protection Act (MMPA) as Category III (79 FR 14418), indicating there is "a remote likelihood of or no known incidental mortality or serious injury of marine mammals" (MMPA 118(c) I).

(6) Can the Proposed Action be expected to have a substantial impact on biodiversity and ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships)?

Response: The Proposed Action is not expected to have impacts to biodiversity and ecosystem function because higher trophic level species affected by the salmon fishery are primarily marine mammals, which generally are opportunistic feeders with various available prey options, and their populations have been stable or increasing. Considerations specifically related to SRKW are more complicated but are addressed in more detail through NMFS' ESA Section 7 consultation on the fishery, as noted above. Overall, Pacific Coast salmon fisheries have a minimal impact on marine mammals, as noted above. Direct salmon fishery impacts on seabirds are minimal to non-existent. Harvest removes salmon that otherwise would have remained in the ecosystem to prey on lower trophic levels; however, salmon fishery removals are not significant in this respect and wide-scale changes in oceanographic conditions, resulting from EI Niño events for example, are the primary determinants of abundance and structure of lower trophic level populations. In addition, maintaining biodiversity by conserving salmon evolutionarily significant units is a key management goal.

(7) Are significant social or economic impacts interrelated with significant natural or physical environmental effects?

Response: Social and economic impacts are responsive to the level of fishing, and the level of fishing is directly related to forecasts of salmon stock abundance in relation to required conservation measures. The Council conducts an economic analysis annually to assess economic impacts. There are no significant natural or physical environmental effects expected to result from the Proposed Action. Therefore, there are no significant social or economic impacts interrelated with significant natural or physical environmental effects.

(8) Are the effects on the quality of human environment expected to be highly controversial?

Response: The impacts of the Proposed Action are not expected to be controversial, due to use of the best available science by the Council's advisory bodies in developing the alternatives and the public presentations during the development of these options at coho workgroup meetings and Council meetings.

(9) Can the Proposed Action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

Response: No significant impacts are expected to occur on any of the above areas. No ground disturbing activity is part of this Proposed Action.

(10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

Response: The Proposed Action is not likely to result in effects on the human environment that are highly uncertain or involve unique or unknown risks. The Proposed Action would not be substantially different from the harvest control rule that has been in place since 2006, thus, risks from implementing a harvest control rule of this type for LCR coho are relatively well known. There is some uncertainty involved in projecting stock abundance in a given year; however, such uncertainty is addressed through precautionary management measures and weak stock management, which results in lower impacts on healthy stocks that are intermixed with weak stocks in the fishery. Thus, there are no expected unknown risks associated with this Proposed Action.

(11) Is the Proposed Action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: As described in the cumulative effects analysis, section 4.4 of this EA, the Proposed Action is not expected to be related to other actions with individually insignificant but cumulatively significant impacts. The action would not have any significant cumulative effects. Fisheries are managed in a sustainable manner. Managers account for impacts from other fisheries in developing annual management measures. Fisheries are conducted consistent with ESA consultations, which serve to

protect multiple stocks in the mixed-stock ocean salmon fishery, especially where ocean distributions overlap.

(12) Is the Proposed Action likely to adversely affect districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

Response: The Proposed Action does not involve, and is not expected to affect, anything listed, or eligible for listing in the National Register of Historic Places or cause the loss or destruction of significant cultural, scientific, or historical resources.

(13) Can the Proposed Action reasonably be expected to result in the introduction or spread of a non-indigenous species?

Response: The Proposed Action does not involve any activities that would result in the introduction or spread of a non-indigenous species.

(14) Is the Proposed Action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

Response: The action will not be setting precedents for future actions with significant effects because fishery management measures are structured each year based on best available scientific information, including guidance from ESA section 7 consultations and the resulting biological opinions.

(15) Can the Proposed Action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

Response: The Proposed Action will not result in any activity that would violate any laws or requirements imposed for the protection of the environment.

(16) Can the Proposed Action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

Response: The Council sets management measures for ocean salmon fisheries annually based on stock forecasts and in accordance with conservation objectives set in the FMP and with consideration for guidance provided by NMFS for managing impacts to ESA-listed stocks and fishery impacts in the North of Falcon and U.S. v. Oregon processes. The Council and NMFS also manage fisheries inseason to keep fisheries impacts within the constraints set preseason. The Council also conducts annual methodology reviews to improve models and other tools for assessing salmon stocks. Therefore, because effects are analyzed annually using the best available science, and in consideration of the response of salmon stocks to climate change, the Proposed Action would not have any significant impact on cumulative effects.

DETERMINATION

In view of the information presented in the EA, it is hereby determined that the approval by NMFS of this action will not significantly impact the quality of the human environment as described above and in the supporting EA. In addition, all beneficial and adverse impacts of the Proposed Action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

April 7, 2015

William W. Stelle, Jr.
Regional Administrator
West Coast Region, NMFS

Date

List of Persons and Agencies Consulted

This action is a Council-recommended action that includes all interested and potential cooperating agencies, such as tribal government representatives and state representatives for Washington, Oregon, Idaho, and California.

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