PRESEASON REPORT II

PROPOSED ALTERNATIVES
AND
ENVIRONMENTAL ASSESSMENT PART 2
FOR 2022 OCEAN SALMON FISHERY REGULATIONS

REGULATION IDENTIFIER NUMBER 0648- BK78

Pacific Fishery Management Council
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MARCH 2022

PUBLIC HEARINGS ON SALMON ALTERNATIVES

Hearings held on-line
Web link https://meetings.ringcentral.com/join

Washington
Tuesday, March 22, 2022, 7:00 p.m.
Meeting ID: 416 470 064

California
Tuesday, March 22, 2022, 7:00 p.m.
Meeting ID: 118 376 101

Oregon
Wednesday, March 23, 2022, 7:00 p.m.
Meeting ID: 101 861 821

Written public comment on the Alternatives may also be submitted to the PFMC (www.pcouncil.org) Public Comment Electronic Portal (E-Portal). The public comment deadline is 5:00 p.m. Pacific Time, Tuesday, April 5, 2022.

Public comment on the Alternatives will also be accepted during the April Council meeting on Friday, April 8, during the public comment period for Agenda Item D.2.

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A report of the Pacific Fishery Management Council pursuant to National Oceanic and Atmospheric Administration Award Number FNA20NMF4410011.

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LIST OF ACRONYMS AND ABBREVIATIONS

AABM	Aggregate Abundance Based Management
ABC	acceptable biological catch
ACL	annual catch limit
BO	biological opinion
BC	British Columbia
CCC	California coastal Chinook
CCIEA	California Current Integrated Ecosystem Assessment
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Commission
CO	central Oregon (South end of Heceta Bank to Humbug Mountain.)
Council	Pacific Fishery Management Council
CPUE	catch per unit effort
CYER	Calendar year exploitation rate
DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ENSO	El Niño/Southern Oscillation
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FB	Fort Bragg (southern boundary of California KMZ to Point Arena)
FRAM	Fishery Regulation Assessment Model
FMA	fishery management area
FMP	fishery management plan
FONSI	finding of no significant impact
GSI	genetic stock identification
IPHC	International Pacific Halibut Commission
ISBM	Individual Stock Based Management
KC	California KMZ (OR/CA border to latitude 40°10'N.)
KO	Oregon KMZ (Humbug Mountain to the OR/CA border)
KMZ	Klamath Management Zone
KRFC	Klamath River fall Chinook
LCN	Lower Columbia Natural (wild Columbia River coho below Bonneville Dam)
LCR	Lower Columbia River (wild Col. River tule fall Chinook below Bonneville Dam)
LRH	Lower River Hatchery (hatchery Col. River tule fall Chinook below Bonneville Dam)
LRW	Lower River Wild (Columbia River bright fall wild Chinook below Bonneville Dam)
MSST	minimum stock size threshold
MO	Monterey (Pigeon Point to the U.S./Mexico border)
NEPA	National Environmental Policy Act
MSA	Magnuson-Stevens Act
MSY	maximum sustainable yield
NMFS	National Marine Fisheries Service
NO	northern Oregon (Cape Falcon to south end of Heceta Bank)
NAO	National Oceanic and Atmospheric Administration Administrative Order
NOAA	National Oceanic and Atmospheric Administration

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

ODFW	Oregon Department of Fish and Wildlife
OCN	Oregon coastal natural (coho)
OFL	overfishing limit
OLE	Office of Law Enforcement (NOAA)
OPI	Oregon Production Index
OSP	Oregon State Police
PDO	Pacific (inter) Decadal Oscillation
PFMC	Pacific Fishery Management Council
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
S_{ABC}	spawning escapement associated with ABC
S_{ACL}	spawning escapement associated with ACL (= S_{ABC})
SCH	Spring Creek Hatchery (Col. R. tule fall Chinook returning to Spring Creek Hatchery [above Bonneville Dam])
SEAK	Southeast Alaska
S_{MSY}	MSY spawning escapement
SF	San Francisco (Point Arena to Pigeon Point)
SONCC	Southern Oregon/Northern California Coast (coho ESU)
SRFC	Sacramento River fall Chinook
SRFI	Snake River fall (Chinook) Index
SRKW	Southern Resident Killer Whale
SRW	Snake River wild (fall Chinook)
SRWC	Sacramento River winter Chinook
STT	Salmon Technical Team
SWO	State Waters Only (fisheries off Oregon south of Cape Falcon)
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
WCVI	West Coast Vancouver Island
WDFW	Washington Department of Fish and Wildlife

1.0 INTRODUCTION

This report, which we refer to as Preseason Report II, is the third in an annual series of four reports prepared by the Salmon Technical Team (STT) of the Pacific Fishery Management Council (Council) to document and help guide ocean salmon fishery management off the coasts of Washington, Oregon, and California. This report describes the Council's proposed ocean salmon management alternatives for 2022[1] (Alternatives) and characterizes the expected impacts on ocean salmon fisheries and the stocks that support them. The Council solicits public comments on the proposed Alternatives in preparation for adopting final management recommendations at its annual April meeting. Three public hearings are scheduled to provide opportunity for public comments on the proposed Alternatives (information is displayed on the inside front cover of this report). In addition, opportunity for public comments will be provided at the April Council meeting. Written public comments can be submitted to the PFMC Public Comment Electronic Portal (E-Portal). The deadline for submitting written comments is 5:00 p.m. Pacific Time, Monday, April 5, 2022.

This report constitutes the second part of an Environmental Assessment (EA) to comply with National Environmental Policy Act (NEPA) requirements for the 2022 ocean salmon management measures. An EA is used to determine whether an action being considered by a Federal agency has significant impacts. The first part of this EA (Preseason Report I; PFMC 2022a, incorporated herein by reference), includes a statement of the purpose and need for the proposed action, a description of the affected environment, a description of the No-Action Alternative, and an evaluation of the No-Action Alternative's effects of the salmon stocks included in the Councils Fishery Management Plan (FMP). This second part of the EA includes an additional description of the affected environment relevant to the Council's proposed Alternatives, a description of the Alternatives, and an analysis of the environmental consequences of the Alternatives, including short term and long term impacts of the Alternatives.

2.0 SELECTION OF FINAL MANAGEMENT MEASURES

The Council's final ocean salmon season recommendations will be based on the range of Alternatives presented in this report and guidance received from deliberations at management fora such as the north of Cape Falcon planning process (sponsored by the States of Washington and Oregon and the treaty Indian tribes in that area), Pacific Salmon Commission (PSC), and from public hearings sponsored by the Council and the States of Washington, Oregon, and California. Final recommendations concerning season dates, catch quotas, and exploitation rates may vary from the Alternatives presented in this report depending upon determination of allocations, allowable harvest levels, public comment, or the final impact analyses completed by the STT. For example, elements of the Alternatives may be recombined to alter season patterns and quotas, or measures such as bag limits, days of fishing per week, special landing restrictions, and other specific regulatory details may also change. In addition, inseason modification of management measures may be used to ensure achievement of the Council's management objectives.

Specific details pertaining to season structure and special management measures for the treaty Indian troll fishery north of Cape Falcon are established in tribal regulations. Chinook and coho quota levels for the treaty Indian troll fishery may be adjusted if substantial changes in incidental fishing mortality result from tribal regulations, preseason or inseason.

The impact analyses presented in this document reflect uncertainties and limitations of information available at the time of the March 2022 Council meeting. At this point in the planning cycle, the STT's impact assessments reflect five key assumptions relative to stocks impacted by Canadian and Alaskan fisheries:

[1] The fishery management measures under consideration would cover the period May 16, 2022 through May 15, 2023 (86 FR 26426). For ease of reference, we refer to this time period as 2022.

1) abundance levels for Canadian Chinook and coho stocks identical to 2021 forecasts;
2) for Canadian Chinook fisheries managed under the aggregate abundance-based management (AABM) provisions of the 2019 Pacific Salmon Treaty (PST) Agreement, including Northern British Columbia and West Coast Vancouver Island (WCVI) troll and sport fisheries, 2022 fisheries were modeled using fishing effort scalars from the final 2021 preseason model run;
3) for Canadian Chinook fisheries managed under individual stock-based management (ISBM) regimes, the 2022 fishery inputs were modeled using recent two-year average catches to reflect anticipated fishing levels consistent with the 2019 PST Agreement;
4) for Canadian coho fisheries, all fisheries were modeled using 2018 and 2019 postseason fishing effort scalars from the Fishery Regulation Assessment Model (FRAM);
5) for Southern U.S. inside fisheries for Chinook and inside and coastal terminal fisheries for coho, the 2021 final preseason modeled fisheries were used.

In mid-March, U.S. and Canadian fishery managers exchange information regarding preseason expectations for fisheries and the status of Chinook and coho stocks. In addition, the PSC's Chinook Model will be calibrated by the PSC Chinook Technical Committee to determine the allowable catch ceilings for Canadian AABM fisheries under the 2019 PST Agreement. Abundances and fishery expectations will be adjusted in the Council's fishery planning models prior to the April Council meeting, and inside fisheries will be shaped by state and tribal co-managers both prior to and during the April Council meeting.

Any Alternative considered for adoption that deviates from Salmon FMP objectives or other applicable laws will require implementation by emergency rule. If an emergency rule appears to be necessary, the Council must clearly identify and justify the need for such an action consistent with emergency criteria established by the Council and the National Marine Fisheries Service (NMFS).

3.0 SALMON TECHNICAL TEAM CONCERNS

The Salmon Technical Team has no concerns to report in this document.

4.0 SALMON FISHERY MANAGEMENT PLAN REQUIREMENTS

The Council's Salmon FMP includes objectives for setting annual management measures to regulate ocean salmon fisheries between the U.S./Canada border and the U.S./Mexico border. The objectives include biological, administrative, and allocation requirements. In recommending final management measures, the Council attempts to meet all objectives in a fair and balanced manner, while maintaining established priorities.

Biological objectives for stocks originating in the Council area and impacted by Council area ocean fisheries are listed in Table 3-1 of the Salmon FMP. The objectives generally consist of meeting spawning escapement numbers associated with maximum sustainable yield (S_{MSY}), overfishing limits (OFL), acceptable biological catch (ABC), and annual catch limits (ACL), or exploitation rate limits designed to support recovery of depressed stocks or to rebuild overfished stocks, while encompassing a long term average harvest approximating maximum sustainable yield (MSY).

Administrative objectives are requirements for meeting other applicable law outside of the Salmon FMP. These requirements include the Endangered Species Act (ESA), international treaties, and tribal trust responsibilities. The Salmon FMP defers to measures needed to protect ESA-listed species analyzed in or required by biological opinions issued by NMFS under ESA section 7(a)(2) (referred to in the Salmon FMP as "consultation standards"). Section 5.0 of this document provides greater detail on ESA listed species, while impacts of the proposed Alternatives on ESA listed species are included in Table 5

The Salmon FMP requires compliance with relevant terms of the PST. Section 6.0 of this document provides greater detail on PST provisions and stocks, while impacts of the Council adopted proposed Alternatives on those stocks are included in Table 5.

Treaty trust responsibilities of the Salmon FMP require the Council to abide by Court orders in the *U.S. v. Washington* (Puget Sound), *Hoh v. Baldrige* (Washington coast), and *U.S. v. Oregon* (Columbia River) cases, and the Solicitor General opinion (Klamath River) governing allocation and management of shared salmon resources. Much of the North of Falcon forum is dedicated to annual negotiations establishing allocation among the tribes, non-Indian fishing sectors, and ocean and inside interests. The results of these negotiations allow the Council to complete final management measure recommendations while meeting its biological, administrative, and allocation objectives.

The Columbia River treaty tribes establish periodic management agreements with the state co-managers and Federal agencies. These agreements are approved pursuant to provisions of *U.S. v. Oregon* procedures. Recent agreements have included an entitlement for the treaty tribes of 50 percent of the coho return destined for areas upstream from Bonneville Dam. Council area fisheries are shaped in order to meet this requirement in some years.

The Yurok and Hoopa Valley Tribes are entitled to 50 percent of the total Klamath River fall Chinook (KRFC) harvest, which is calculated as a harvest of KRFC equal to that taken in all non-Indian fisheries. The Council must account for all harvest impacts when assessing the achievement of KRFC conservation objectives.

5.0 SALMON SPECIES LISTED UNDER THE ENDANGERED SPECIES ACT

Since 1989, NMFS has listed the following 17 Evolutionarily Significant Units (ESUs) of salmon under the ESA:

Species	ESU	Status	Federal Register Notice			
			Most Recent		Original Listing	
	Chinook					
Chinook Salmon	Sacramento River Winter	Endangered	81 FR 33468	5/26/2016	54 FR 32085	8/1/1989
(*O. tshawytscha*)	Snake River Fall	Threatened	81 FR 33468	5/26/2016	57 FR 14653	4/22/1992
	Snake River Spring/Summer	Threatened	81 FR 33468	5/26/2016	57 FR 14653	4/22/1992
	Puget Sound	Threatened	81 FR 33468	5/26/2016	64 FR 14308	3/24/1999
	Lower Columbia River	Threatened	81 FR 33468	5/26/2016	64 FR 14308	3/24/1999
	Upper Willamette River	Threatened	81 FR 33468	5/26/2016	64 FR 14308	3/24/1999
	Upper Columbia River Spring	Endangered	81 FR 33468	5/26/2016	64 FR 14308	3/24/1999
	Central Valley Spring	Threatened	81 FR 33468	5/26/2016	64 FR 50394	9/16/1999
	California Coastal	Threatened	81 FR 33468	5/26/2016	64 FR 50394	9/16/1999
	Chum					
Chum Salmon	Hood Canal Summer-Run	Threatened	81 FR 33468	5/26/2016	64 FR 14508	3/25/1999
(*O. keta*)	Columbia River	Threatened	81 FR 33468	5/26/2016	64 FR 14508	3/25/1999
	Coho					
Coho Salmon	Central California Coastal	Endangered	81 FR 33468	5/26/2016	61 FR 56138	10/31/1996
(*O. kisutch*)	S. Oregon/ N. California Coastal	Threatened	81 FR 33468	5/26/2016	62 FR 24588	2019
	Oregon Coastal	Threatened	81 FR 33468	5/26/2016	63 FR 42587	8/10/1998
	Lower Columbia River	Threatened	81 FR 33468	5/26/2016	70 FR 37160	6/28/2005
	Sockeye					
Sockeye Salmon	Snake River	Endangered	81 FR 33468	5/26/2016	56 FR 58619	11/20/1991
(*O. nerka*)	Ozette Lake	Threatened	81 FR 33468	5/26/2016	64 FR 14528	3/25/1999

As the listings have occurred, NMFS has initiated formal consultations and issued biological opinions (BOs) that consider the impacts resulting from implementation of the Salmon FMP, or from annual management measures, to listed salmonid species. NMFS has also reinitiated consultation on certain ESUs when new information has become available on the status of the stocks or on the impacts of the Salmon FMP on the stocks. The consultation standards referred to in this document are derived from those consultations and include: (1) reasonable and prudent alternatives, (2) conservation objectives for which NMFS conducted Section 7 consultations and arrived at a no-jeopardy conclusion, and (3) NMFS requirements under Section 4(d) determinations.

A list of current BOs in effect, the species they apply to, and their duration follows:

Date	Evolutionarily Significant Unit covered and effective period
3/8/1996	Snake River spring/summer and fall Chinook and sockeye (until reinitiated)
4/28/1999	Oregon Coastal natural coho, Southern Oregon/ Northern California coastal coho, Central California coastal coho (until reinitiated)
4/28/2000	Central Valley spring Chinook (until reinitiated)
4/27/2001	Hood Canal summer chum 4(d) limit (until reinitiated)
4/30/2001	Upper Willamette Chinook, Upper Columbia spring Chinook, Lake Ozette sockeye, Columbia River chum, and 10 steelhead ESUs (until reinitiated)
4/30/2004	Puget Sound Chinook (until reinitiated)
6/13/2005	California coastal Chinook (until reinitiated)
4/26/2012	Lower Columbia River Chinook (until reinitiated)
4/9/2015	Lower Columbia River natural coho (until reinitiated)
4/26/2018	Sacramento River winter Chinook (until reinitiated)

Amendment 12 to the Salmon FMP added the generic category "species listed under the ESA" to the list of stocks in the salmon management unit and modified respective escapement goals to include "manage consistent with NMFS jeopardy standards or recovery plans to meet immediate conservation needs and long-term recovery of the species." Amendment 14 specified those listed ESUs and clarified which stocks in the FMP management unit were representative of the ESUs.

In a letter received by the Council (dated March 8, 2022), NMFS summarized existing consultation standards and provided guidance on measures needed to protect species listed under the ESA during the 2022 fishing season. The letter summarized the measures analyzed and/or recommended in the relevant NMFS' BOs on the effects of fisheries managed under the salmon FMP on listed salmon and specified limits applicable for the 2022 fishing season given abundance forecasts and other season-specific information. The letter also provides NMFS' recommendations for certain non-ESA listed stocks in the fishery.

The ESA consultation standards, exploitation rates, and other criteria in place for the 2022 management season are presented in Table 5. Some listed species are either rarely caught in Council fisheries (e.g., spring Chinook from the upper Columbia River) or already receive sufficient protection from measures implemented to limit impacts to other stocks (e.g., Central Valley spring Chinook). NMFS has determined that management actions designed to limit catch from these ESUs, beyond what will be provided by harvest constraints for other stocks, are not necessary.

Of the listed Chinook and coho, Council-managed fisheries have substantive impacts on Sacramento River winter Chinook (SRWC), Central Valley spring Chinook, California coastal Chinook (CCC), Snake River wild (SRW) fall Chinook, lower Columbia River (LCR) fall Chinook, and all of the coho stocks.

Additional listed salmonid ESUs found within the Council area, but not substantively impacted by Council managed fisheries, include:

Chinook	**Steelhead**
Snake River spring/summer (threatened)	Southern California (endangered)
Upper Willamette (threatened)	South-central California coast (threatened)
Puget Sound (threatened)	Upper Columbia River (endangered)
Upper Columbia River spring (endangered)	Middle Columbia River (threatened)
	Snake River Basin (threatened)
Sockeye	Puget Sound (threatened)
Snake River (endangered)	Central Valley, California (threatened)
Ozette Lake Sockeye (threatened)	Central California coast (threatened)
	Upper Willamette River (threatened)
Chum	Lower Columbia River (threatened)
Columbia River (threatened)	Northern California (threatened)
Hood Canal summer (threatened)	

6.0 OBLIGATIONS UNDER THE PACIFIC SALMON TREATY

In 1985 the PST was signed, setting long-term goals for the benefit of the shared salmon resources of the United States and Canada. The PSC is the body formed by the governments of Canada and the United States to implement the PST.

6.1 Chinook Salmon Management

A new ten-year agreement under the PST was adopted by both the U.S. and Canada and implemented beginning with the 2019 fishing year. The new agreement includes reductions to catch ceilings for

Southeast Alaska (SEAK) and WCVI AABM fisheries relative to the prior 2009 agreement. For SEAK, the reductions range from 1.5 percent in years of high abundance to 7.5 percent in years of low abundance. For WCVI, the reductions range from 2.4 percent in years of high abundance to 12.5 percent in years of low abundance. Additionally, beginning with the 2019 agreement, while catch ceilings will continue to be determined using the AI from the PSC Chinook Model for Northern British Columbia and WCVI AABM fisheries, the allowable catches for SEAK fisheries will be set using a catch-per-unit-effort (CPUE) estimate from the early winter power troll fishery (see Tables 1 and 2 in Chapter 3 of the 2019 Agreement for specifics).

Fisheries not subject to AABM regimes, including Council area fisheries, are subject to a new set of ISBM obligations under the 2019 agreement. These provisions require the calendar year exploitation rate (CYER) by all U.S. fisheries south of the U.S./Canada border on specific indicator stocks to be below some level of the average 2009 – 2015 CYER if they do not achieve their management objectives (see Attachment I in Chapter 3 of the 2019 Agreement for specifics). Similar to previous ISBM obligations, these limits are taken into account during preseason planning processes, however, relative to meeting the provisions of the PST, the CYER limits are evaluated on a postseason basis only. Canadian fisheries that are not included in AABM complexes are managed under ISBM constraints, which, similar to U.S. ISBM fisheries, require the CYER by Canadian ISBM fisheries on specific indicator stocks to be below some level of the average 2009 – 2015 CYER if they do not achieve their management objectives. Expectations for Canadian and Alaskan fisheries harvest and stock abundance forecasts are incorporated into the Chinook FRAM to estimate total exploitation rate impacts from all marine fisheries (Table 5).

Key considerations for Canadian domestic fishery management for Chinook in 2022 include: (1) meeting domestic conservation obligations for WCVI, Lower Strait of Georgia, Fraser River Spring 4.2 and 5.2, Fraser Summer 5.2, Fraser Summer 4.1 and Fraser Fall 4.1 (Harrison River) stocks; (2) meeting First Nations Food, Social and Ceremonial and treaty obligations for Chinook harvests in native fisheries; and (3) monitoring of incidental impacts during commercial and native fisheries directed at sockeye, and chum salmon. It is anticipated that the details of the fishery regulatory package off WCVI and in the Juan de Fuca-Strait of Georgia areas will be driven by levels of allowable impact on WCVI, Lower Strait of Georgia and Fraser River Chinook stocks, in addition to Interior Fraser (Thompson River) coho, and potentially Thompson and/or Chilcotin River Steelhead. Increasing the availability of Chinook salmon in key foraging areas of Southern Resident Killer Whales in the southern British Columbia (BC) region is an additional consideration which will be supported through conservation actions implemented for Fraser River and other Chinook salmon.

6.2 Coho Salmon Management

In 2002, the PSC adopted a management plan for coho salmon originating in Washington and Southern British Columbia river systems. The plan is directed at the conservation of key management units, four from Southern British Columbia (Interior Fraser, Lower Fraser, Strait of Georgia Mainland, and Strait of Georgia Vancouver Island) and nine from Washington (Skagit, Stillaguamish, Snohomish, Hood Canal, Strait of Juan de Fuca, Quillayute, Hoh, Queets, and Grays Harbor). Exploitation rate limits for intercepting fisheries are established for individual management units through formulas specified in the 2019 PST Southern Coho Management Plan, and are based on total allowable fishery exploitation rates.

The categorical status of U.S. coho management units is reported to comply with obligations pursuant to the 2019 PST Southern Coho Management Plan. Categorical status is employed by the PSC under the 2019 PST Southern Coho Management Plan to indicate general ranges of allowable total exploitation rates for U.S. and Canadian coho management units. Three categories are employed: low (total exploitation rate less than 20 percent), moderate (total exploitation rate 20 percent to 40 percent), and abundant (total exploitation rate greater than 40 percent). For the Puget Sound management units, the 2019 PST Southern

Coho Management Plan uses the thresholds and stepped harvest rate goals from the Comprehensive Coho Agreement, developed by Washington and the Puget Sound tribes, and adopted by the Council as FMP conservation objectives in November 2009. Actual exploitation rate constraints for Canadian fisheries on U.S. coho management units are determined by formulas that specify sharing of allowable exploitation rates and a "composite rule." The composite rule adjusts constraints for Canadian fishery exploitation rates based on the number of U.S. management units which fall in a given category. For example, if only one Washington coastal or Puget Sound coho management unit is in low status, Canadian fisheries are constrained to a total exploitation rate on that unit of 12 percent; if two or more Washington coastal management units are in low status, the constraint becomes 10 percent. The most restrictive exploitation rate limit for Canadian fishery impacts on U.S. coho management units is 10 percent.

For several Washington coastal coho management units, management objectives are expressed as a range of spawning escapements expected to produce MSY. Allowable exploitation rates are calculated from the forecast abundance and the lower end of the escapement range and used to classify the categorical status of the management units. This rate is the maximum allowed under the PST when the management unit is in the moderate or abundant status, but exploitation rates up to 20 percent are allowed if the management unit is in the low abundance status.

For 2022, Puget Sound and Washington coast coho constraints are as follows:

FMP

FMP Stock	Total Exploitation Rate Constraint[a/]	Categorical Status[a/]
Skagit	60%	Normal
Stillaguamish	50%	Normal
Snohomish	40%	Low
Hood Canal	45%	Low
Strait of Juan de Fuca	20%	Critical
Quillayute Fall	59%	
Hoh	65%	
Queets	65%	
Grays Harbor	65%	

PST Southern Coho Management Plan

U.S. Management Unit	Total Exploitation Rate Constraint[b/]	Categorical Status[c/]
Skagit	60%	Abundant
Stillaguamish	50%	Abundant
Snohomish	40%	Moderate
Hood Canal	45%	Moderate
Strait of Juan de Fuca	20%	Low
Quillayute Fall[c/]	50%	Abundant
Hoh[c/]	57%	Abundant
Queets[c/]	68%	Abundant
Grays Harbor[c/d/]	73%	Abundant

a/ Preliminary. For Puget Sound stocks, the exploitation rate constraints and categorical status (Normal, Low, Critical) reflect application of Comprehensive Coho Agreement rules, as adopted in the FMP. For Washington Coast stocks, exploitation rate constraints represent MFMT. Note that under *U.S. v. Washington* and *Hoh v. Baldrige* case law, the management objectives can differ from FMP objectives provided there is an annual agreement among the state and tribal comanagers; therefore, the exploitation rates used to report categorical status do not necessarily represent maximum allowable rates for these stocks.

b/ Preliminary. For Puget Sound and Washington Coast management units, the exploitation rate constraints reflect application of the 2019 PST Southern Coho Management Plan.

c/ Categories (Abundant, Moderate, Low) correspond to the general exploitation rate ranges depicted in paragraph 8(b)(iii) of the 2019 PST Southern Coho Management Plan. For Washington Coast stocks, categorical status is determined by the exploitation rate associated with meeting the escapement goal (or the lower end of the escapement goal range). As Washington Coast stocks are managed to achieve agreed escapement goals, this exploitation rate also becomes an approximation of the maximum allowable rate unless the stock is in the "Low" status. In that case, an ER of up to 20% is allowed.

d/ Based on projected natural area spawners (wild plus hatchery strays) and MSP escapement goal of 35,400. Exploitation rate constraint subject to change should comanagers agree to a modified escapement goal under *U.S. v. Washington* and *Hoh v. Baldrige* case law.

Key considerations for Canadian fishery management for coho in 2022 are expected to include: (1) meeting domestic conservation obligations for Interior Fraser (including Thompson River) coho; (2) coho harvests by First Nations fisheries; (3) incidental impacts during commercial and First Nations fisheries directed at Chinook, chum, and especially Fraser sockeye salmon which will see a dominant late run return in 2022. The Canadian fishery regimes affecting coho are expected to be driven by Canadian domestic allowable impacts on the Thompson River component of the Interior Fraser management unit, Fraser Chinook concerns and Fraser sockeye stocks of concern co-migrating with the late run.

In years prior to 2014, Canadian fisheries were managed so as not to exceed a three percent maximum exploitation rate. In May 2014, Canada decided to permit up to a 16 percent exploitation rate on upper Fraser coho in Canadian fisheries to allow for impacts in fisheries directed at a record Fraser sockeye forecast. Since 2015, upper Fraser coho in Canadian fisheries have been managed per low status limitations. The projected status of Canadian coho management units in 2022 indicates continuing concerns for the condition of Interior Fraser coho. The Interior Fraser coho management unit is anticipated to remain in low abundance status, resulting in a requirement to constrain the total mortality fishery exploitation rate for 2022 Southern U.S. fisheries to a maximum of 10.0 percent.

7.0 DESCRIPTION OF THE ALTERNATIVES

Detailed information on the proposed 2022 ocean salmon management measure Alternatives are presented in Tables 1 (non-Indian commercial), 2 (recreational), and 3 (treaty Indian). Notable changes from recent seasons are highlighted below. Fisheries scheduled to occur prior to May 16, 2022, which were adopted as part of the 2021 management measures, may have been modified by inseason action at the March 2022 Council meeting. Any such modifications are incorporated into the 2022 season proposed Alternatives described below. The Alternatives under consideration by the Council only cover the period beginning May 16, 2022.

7.1 Commercial

Alternatives for the area north of Cape Falcon reflect a similar total abundance of Chinook and reduced Columbia River hatchery and natural coho compared to 2021 forecasts. In 2022, allowable catch of Chinook will likely be comparable to 2021 due to similar expected impacts in northern fisheries, and an identical total exploitation rate limit on LCR natural tule fall Chinook compared to 2021. Coho catch quotas may be greater than 2021 due to harvestable surplus of Columbia River hatchery coho and an increase in forecasted Washington coastal coho abundance.

Alternative I north of Cape Falcon assigns 66 percent of the troll Chinook quota to the May-June Chinook directed fishery; Alternative II assigns 67 percent to the May-June Chinook directed fishery; Alternative III assigns 50 percent of the troll Chinook quota to the May-June Chinook directed fishery. In all Alternatives, the May-June fishery opens May 1 seven days per week, with sub-quotas in the areas north of the Queets River and in the area south of Leadbetter Point in place during the May-June time period. In Alternatives I and II, there is a per week (Thursday-Wednesday) landing and possession limit in the areas north of the Queets River and in the area south of Leadbetter Point, while Alternative III contains a five day per week (Friday-Tuesday) open period with landing and possession limits in the area north of the Queets River and in the area south of Leadbetter Point. The summer all-salmon fishery in Alternatives I and III opens seven days per week beginning July 1 while Alternative II opens five days per week with coho landing and possession limits in place for all Alternatives. Also in all Alternatives, the Chinook minimum size limit is 27 inches total length, all retained coho must be marked with a healed adipose fin clip, and the fishery is scheduled to open in 2023 on May 1.

Commercial fisheries south of Cape Falcon will be constrained primarily by LCR natural tule Chinook and NMFS guidance for California Coastal Chinook requiring a maximum KRFC age-4 ocean harvest rate of 10 percent. Sacramento River fall Chinook (SRFC) and KRFC were declared overfished in 2018. SRFC are now rebuilt while the status of KRFC remains overfished. All Alternatives were structured to achieve the FMP guidance for KRFC under a *de minimis* fishing regime: a maximum allowable harvest rate of 25.0 percent, which results in an expected natural area escapement of 38,180 adults.

For the area between Cape Falcon and Heceta Bank line the fishery would open on March 15 and run through April, and be open all of September and October in all three Alternatives. In Alternative I, the fishery is open for all salmon except coho from March 15 through June 30 and again from August 1-8. Alternatives II and III have open periods throughout June, July, and August in the Cape Falcon to Heceta Bank line area. Under Alternative II there is a marked coho retention during open days in July that is managed under a 10,000 marked coho quota with a limit of 50 coho per open period and a 1:1 ratio with Chinook.

For the area between Heceta Bank line and Humbug Mountain, fisheries under Alternative I are open all of May and from August 1-8 for all salmon except coho. Alternative II has days in June and July in addition to all of May, with coho retention in the July open period. Alternative III has periodic openings in both May and August. In all three Alternatives the area is fully open in the months of September and October.

In the Oregon portion of the Klamath Management Zone (KMZ) under Alternative I, the season would be open March 15 through April 30 and closed in May. June, July, and August are open and would be managed under monthly quotas of 800, 400, and 250 Chinook, respectively, with weekly landing and possession limits of 50 Chinook from June 1 – August 28. Under Alternative II, the season would be open March 15 through July 31, excluding the month of May. June and July would be managed under monthly quotas of 550 and 200 Chinook respectively, with weekly landing and possession limits of 20 Chinook. Under Alternative III, the fishery would be open March 15 through July, with a brief closed period from May 15 through May 22. June and July would be managed under monthly quotas of 800 and 500 Chinook, respectively, with weekly landing and possession limits of 50 Chinook.

The California portion of the KMZ is closed under all three Alternatives.

In the Fort Bragg area, under Alternative I, the fishery would be open for ten days in July, ten days in August, and the month of September. The fishery under Alternative II would be open for ten days in August and the month of September. The fishery would be closed under Alternative III.

In the San Francisco area, under Alternative I, the fishery would be open concurrently with Alternative I in Fort Bragg through September. Fisheries under Alternative II would consist of eight days in early July, 12 days in early August, and the entire month of September. Alternatives I and II would have a minimum size limit of 27 inches through the end of August, with a 26 inch size limit thereafter. Alternative III would consist of 11 days in early July, 12 days in early August and the month of September. Alternative III would have a minimum size limit of 28 inches through the end of August, with a 26 inch size limit thereafter. The Fall Area Target Zone fishery between Point Reyes and Point San Pedro would be open for 10 days in early October, Monday through Friday, under each of the Alternatives.

In the Monterey area, Alternatives I and III would be open for portions of May, June, July, and August. Alternative II would be limited to portions of May, June, and July. Differences in the number of days open for each month can be found in Table 1. Alternatives I and II would have a minimum size limit of 27 inches while Alternative III would have a 28 inch minimum size limit.

7.2 Recreational

North of Cape Falcon, in Alternative I, all areas open June 18 for all salmon species seven days per week. The daily bag limit north of the Queets River is two salmon, and the daily bag limit south of the Queets River is two salmon, only one of which may be a Chinook. The closing date in all areas is September 30, with the exception of the area between Cape Alava and the Queets River, which will reopen October 1- 9 with a daily bag limit of one salmon, Chinook only.

In Alternative II, all areas open June 25 for all salmon species, seven days per week. Daily bag limits in all areas are identical to Alternative I. The closing date in all areas is September 30.

In Alternative III, the areas north of the Queets River open June 18 for all salmon species, seven days per week with a daily bag limit identical to Alternative 1. The areas south of the Queets River open June 26, with the area between Leadbetter Point and the Queets River open five days per week (Sunday-Thursday) and the area south of Leadbetter Point open seven days per week, and daily bag limits identical to Alternative I. The closing date in all areas in September 18.

In all Alternatives north of Cape Falcon, all retained coho must be marked with a healed adipose fin clip. In the Westport subarea, the Grays Harbor Control Zone is closed beginning August 8 in all Alternatives.

South of Cape Falcon, for the North and Central Oregon coast Alternatives, Chinook fisheries open March 15 and run through October 31 with the exception of Alternative III. Under Alternative III all of August would be closed to retention of Chinook. Each Alternative includes a mark-selective coho quota fishery in the summer, with different quota sizes and dates. Each Alternative also includes a non-mark-selective coho fishery from Cape Falcon to Humbug Mountain with different quotas and beginning dates in September that is open seven days per week.

In the Oregon KMZ, Alternative I is open for Chinook fishing May 21 through June 27 and is also open for mark-selective coho from June 18 to August 21 or attainment of quota. Alternative II opens July 1 with Chinook retention permitted through August 19. From June 25 through August 21 this area is open for mark-selective coho. Alternative III is open for Chinook fishing from June 25 through July 31.

In the California KMZ, Alternative I opens for May, August, and five days in September. Alternative II allows fishing for the month of May, the first four days in July, and the month of August. Alternative III opens from July 1-24. The minimum size limit is 20 inches for Alternatives I and II, and 24 inches for Alternative III.

In the Fort Bragg area, Alternative I is open from May 1 through November 13, but closed in June. Alternative II is open from May 1 through October 31, but closed July 5-21. Alternative III is open continuously from May 1 through September 30. The minimum size limit is 20 inches for Alternatives I and II, and 24 inches for Alternative III.

Under each of the Alternatives for the San Francisco management area, fishing begins on April 2. Under Alternative I, the season is open through November 13, but closed in June. Under Alternative II, the season is open through October 31, but closed from mid-May through the end of June. Under Alternative III, the season is open from April 2 through April 30, then closed in May and part of June. The fishery re-opens on June 20 and runs continuously through September 30. The minimum size limit is 24 inches for Alternatives I and II through May 15, and 20 inches thereafter. For Alternative III, the minimum size limit is 24 inches for the entire season.

For the Monterey area, from Pigeon Point to the U.S./Mexico border, the fishery opens on April 2 and runs continuously until October 2 under all three Alternatives. Minimum size limits are 24 inches until May 15, and 20 inches thereafter for Alternatives I and II. For Alternative III, the minimum size limit is 24 inches for the entire season.

7.3 Treaty Indian

Tribal troll Alternatives were proposed and will be evaluated during the North of Falcon process.

The proposed Alternatives include a May-June Chinook directed fishery and an all-species fishery targeting coho and Chinook from July 1 to September 15. All Alternatives assign 50 percent of the Chinook quota to each fishing season. The May-June Chinook fishery opens May 1 and allows for the retention of all salmon except coho. The minimum total lengths for Chinook and Coho are 24 inches and 16 inches, respectively.

Any balance of fish remaining from the Chinook directed fishery may be transferred to the all-species fishery on an impact neutral basis.

8.0 AFFECTED ENVIRONMENT AND ANALYSIS OF IMPACTS

The affected environment consists of the following components:

- Target (FMP) species
- Social or economic environments
- Non-target species, including ESA-listed salmonids
- Essential Fish Habitat
- Public health or safety
- ESA listed non-salmonid species or critical habitat, including ESA-listed marine mammals
- Non-ESA-listed marine mammals
- Biodiversity or ecosystem function

8.1 Salmon Stocks in the Fishery

Target stocks include Chinook, coho, and pink salmon stocks identified in Appendix A, Table A-1 of Preseason Report I (Part 1 of this EA; PFMC 2022a). ESA-listed Chinook and coho species are not targeted in Council area salmon fisheries but will be included in the analysis of effects on target species because they are impacted coincidentally with targeted salmon stocks and frequently constrain access to targeted stocks. Environmental impacts to other ESA listed species (e.g., marine mammals) from the Alternatives will be analyzed in a later section of this EA.

A description of the historical baseline for this component of the affected environment is presented in the Review of 2021 Ocean Salmon Fisheries (PFMC 2022a). The current status (2022 ocean abundance forecasts) of the environmental components expected to be affected by the 2022 ocean salmon fisheries regulation Alternatives (FMP salmon stocks) are described in the 2022 Preseason Report I (PFMC 2022b). The criteria used to evaluate whether there are significant effects from the Alternatives on target stocks are achievement of conservation objectives, ACLs, and rebuilding criteria. For ESA listed stocks impacted by the fishery, ESA consultation standards are applied to determine whether there are significant effects. The Salmon FMP conservation objectives are based on the best available science and are intended to prevent overfishing while achieving optimum sustainable yield from West Coast salmon fisheries as required by the Magnuson-Stevens Act (MSA). The ESA consultation standards are likewise based on the best available science and are intended to ensure that fishery impacts do not appreciably reduce the likelihood of survival and recovery of listed. FMP conservation objectives also include criteria for rebuilding

overfished stocks. Therefore, conservation objectives and consultation standards are appropriate indicators for determining the significance of fishery management actions.

8.1.1 Chinook Salmon

Fishery quotas under the Alternatives are presented in Table 4. Stock-specific management criteria and their forecast values under the Alternatives are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality under the Alternatives are summarized in Table 6. Table 7 provide a breakdown of impacts by fishery and area for LCR natural tule Chinook. Appendix A presents tables of adult SRFC impacts, KRFC impacts, and the SRWC age-3 impact rate, stratified by fishery, month, and management area under the three Alternatives.

8.1.1.1 North of Cape Falcon

Abundance projections important to Chinook harvest management north of Cape Falcon in 2022 are:

- *Columbia River hatchery tules*. Combined production of Lower River Hatchery (LRH) and Spring Creek Hatchery (SCH) stocks returning to the Columbia River forecasted to be 164,200, which is higher than the 2021 preseason expectation of 119,900. The LRH forecast is 73,000, which is similar than the forecast of 73,100 in 2021. The SCH forecast is 91,200, which is greater than the 2021 forecast of 46,800.

The primary Chinook salmon management objective shaping the Alternatives north of Cape Falcon is:

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 5.0 above. Relevant stocks for the area north of Cape Falcon include LCR natural tule Chinook, Columbia Lower River Wild (LRW) fall Chinook, and SRW fall Chinook.

Descriptions pertaining to the achievement of key objectives for Chinook salmon management north of Cape Falcon are found below.

- *LCR natural tule fall Chinook*. The Alternatives have exploitation rates on LCR natural tule fall Chinook that range from 38.0 percent to 40.3 percent when combined with preliminary 2022 preseason harvest rates for Columbia River fisheries. In Alternatives I and II the exploitation rates exceed the 38.0 percent NMFS consultation standard maximum for 2022. Additional shaping of PSC and inriver fisheries prior to the April Council meeting may result in changes to the anticipated ERs presented in the Alternatives. LCR tules are the constraining Chinook stock for fisheries north of Cape Falcon in 2022.

- *LRW fall Chinook*. The Alternatives have ocean escapement values ranging from 10,800 to 10,900, which exceeds the ESA consultation standard of 6,900 minimum ocean escapement. LRW Chinook will not constrain ocean fisheries north of Cape Falcon in 2022.

- *SRW fall Chinook*. The Alternatives have ocean exploitation rates ranging from 50.6 percent to 60.0 percent of the base period exploitation rate, which is less than the ESA consultation standard of no more than 70 percent of the 1988-1993 base period exploitation rate for all ocean fisheries. SRW Chinook will not constrain ocean fisheries north of Cape Falcon in 2022.

For Chinook fisheries north of Cape Falcon, Alternative III satisfies NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for relevant Chinook stocks (Table 5). The NMFS ESA consultation standard for LCR natural tule fall Chinook is exceeded in Alternatives I and II.

8.1.1.2 South of Cape Falcon

Status of Chinook stocks important to 2022 Chinook harvest management south of Cape Falcon are:

- *SRFC*. The Sacramento Index forecast is 396,458, which is greater than the 2021 forecast of 270,958.

- *KRFC*. The ocean abundance forecast for this stock is 154,998 age-3, 43,211 age-4, and 1,908 age-5 fish. These compare to the 2021 forecasts of 135,569 age-3, 45,124 age-4, and 815 age-5 fish.

- *SRWC*. The forecast of age-3 escapement absent fishing is 5,971, which is less than the 2021 forecast of 9,063.

Key Chinook salmon management objectives shaping the Alternatives south of Cape Falcon are:

- A KRFC age-4 ocean harvest rate of no greater than 10.0 percent (NMFS guidance).

- A KRFC natural area spawner escapement of at least 38,180 adults, which is produced, in expectation, by a maximum exploitation rate of 25.0 percent (FMP control rule).

- A SRFC hatchery and natural area spawner escapement of at least 180,000 adults (Council guidance).

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 5.0 above. Relevant stocks for the area south of Cape Falcon include SRWC, California coastal Chinook, SRW fall Chinook, and LCR natural tule Chinook.

The maximum allowable exploitation rate for KRFC in 2022 is 0.25, which is a de minimis exploitation rate. In such cases, the FMP stipulates:

"When recommending an allowable de minimis exploitation rate in a given year, the Council shall also consider the following circumstances:

- The potential for critically low natural spawner abundance, including considerations for substocks that may fall below crucial genetic thresholds;
- Spawner abundance levels in recent years;
- The status of co-mingled stocks;
- Indicators of marine and freshwater environmental conditions;
- Minimal needs for Tribal fisheries;
- Whether the stock is currently in an approaching overfished condition;
- Whether the stock is currently overfished;
- Other considerations as appropriate".

The Salmon Technical Team has assessed each of these circumstances, with the exception of minimal needs for Tribal fisheries.

Potential for low spawner abundance

The potential for critically low natural spawner abundance could be considered moderate. The 2022 minimum natural-area spawner escapement of 38,180 adults is greater than the minimum stock size

threshold (MSST; 30,525). A natural-area escapement of 38,180 adults would represent the 25th lowest value over the past 44 years of data.

Substocks
To assess the potential for critically low abundance of substocks, a statistical model (PFMC 2007, Appendix D) was applied to historical run size data to assess the probability that escapement to either the Salmon, Scott, or Shasta rivers would fall below 720 adults, given a total, basin-wide natural area escapement of 38,180 adults in 2022. The 720-adult escapement threshold for these substocks was based on effective population size (genetic) considerations. Application of the model suggested that at least one of the substocks would fall below the 720-adult threshold with a probability of 0.14.

Recent spawner abundance
The natural-area adult spawner escapement has been lower than MSST in six of the last ten years and four of the last five years. The 2022 forecast of natural-area spawners in the absence of fishing is 50,906 adults, which is above the maximum sustainable yield spawner escapement (S_{MSY}; 40,700). If fishing seasons are structured such that the maximum allowable exploitation rate of 25 percent is met, the natural-area adult spawner expectation is 38,180, which is larger than the MSST but below S_{MSY}.

Comingled stocks
With regard to co-mingled stocks, Sacramento River fall Chinook have a moderate abundance forecast and is likely to be less constraining to fisheries than KRFC in 2022.

Environmental indicators
Indicators of marine and freshwater conditions provided in the California Current Integrated Ecosystem Assessment (CCIEA) California Current Ecosystem Status Report for 2022 suggest a mixed assessment of marine and freshwater conditions that could affect KRFC. Table J.2.3 in the CCIEA report displays "stoplight" indicators including adult abundance, incubation, freshwater residence, hatchery releases, and marine indicators relevant to KRFC abundance. The number of adult spawners in years 2018 and 2019 (age-4 and age-3 in 2022, respectively) were moderate and low, respectively. Brood year 2018 progeny experienced mostly average conditions during incubation and freshwater residence, while brood year 2019 progeny encountered a mixture of conditions in freshwater but generally poor freshwater residence conditions. Ocean indicators suggested poor conditions for brood year 2018 and mixed conditions for brood year 2019. Overall, stoplight indicators suggest that the KRFC broods that will make up the bulk of the adult abundance in 2022 experienced mixed conditions in marine and freshwater habitats.

Approaching an overfished condition
The KRFC stock currently meets the criteria for being at risk of approaching an overfished condition.

Overfished status
KRFC was declared overfished following the 2017 escapement and continues to meet the criteria for overfished status in 2022.

Descriptions pertaining to the achievement of key objectives for Chinook salmon management south of Cape Falcon are found below.

- *SRFC*. Council guidance for a minimum of 180,000 hatchery and natural area adult spawners is met by each of the Alternatives.

- *KRFC*. The control rule-defined minimum of 38,180 natural area adult spawners is met by each of the Alternatives.

- *SRWC*. The ESA consultation standard that (1) limits the forecast age-3 impact rate in 2022 fisheries south of Point Arena to a maximum of 20.0 percent and (2) specifies time/area closures and minimum size limit constraints south of Point Arena, is met by each of the Alternatives.

- *California coastal Chinook*. NMFS guidance to limit the forecast KRFC age-4 ocean harvest rate to a maximum of 10.0 percent is met by each of the Alternatives.

- *SRW fall Chinook*. SRW Chinook will not constrain ocean fisheries south of Cape Falcon in 2022.

Each of the Alternatives for Chinook fisheries south of Cape Falcon satisfies NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for relevant Chinook stocks (Table 5).

8.1.2 Coho Salmon

Fishery quotas under the Alternatives are presented in Table 4. Stock-specific management criteria and their forecast values under the Alternatives are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality under the Alternatives are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for Lower Columbia Natural (LCN), Oregon Coastal Natural (OCN), and Southern Oregon/Northern California Coastal (SONCC) coho populations. Table 8 provides expected coho mark rates for west coast fisheries by month.

Abundance projections important to coho harvest management in Council area fisheries in 2022 are:

- *Oregon Production Index (OPI) Hatchery coho.* The forecast for hatchery coho from the Columbia River and the coast south of Cape Falcon of 1,003,500 is lower than the 2021 forecast of 1,607,900. The Columbia River early coho forecast is 592,500 compared to the 2021 forecast of 1,014,000, and the Columbia River late coho forecast is 404,700 compared to the 2021 forecast of 576,000.
- *OCN coho.* The OCN forecast is 222,400 compared to the 2021 forecast of 125,000.
- *LCN coho.* The LCN forecast is 65,700 compared to the 2021 forecast of 39,200.
- *Puget Sound coho.* Among Puget Sound natural stocks, Strait of Juan de Fuca coho are in the critical category. Snohomish, and Hood Canal coho are in the low category, and Skagit and Stillaguamish coho are in the normal category.
- *Interior Fraser (Thompson River) coho.* This Canadian stock continues to be depressed, and will continue to constrain ocean coho fisheries north of Cape Falcon.
- *Washington coastal coho.* Forecasts for most Washington coastal coho stocks are higher compared to 2021. Among Washington coastal natural stocks, Quillayute fall, Queets, Hoh and Grays Harbor coho are all in the abundant category under the PST Southern Coho Management Plan.

Key coho salmon management objectives shaping the Alternatives are:

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 5.0 above. Relevant stocks include Central California Coast coho (south of the Oregon/California border), SONCC coho, OCN coho, and LCN coho. The maximum allowable exploitation rates for 2022 are: (1) a combined marine/freshwater exploitation rate not to exceed 15.0 percent for OCN coho, (2) a combined exploitation rate in marine-area and mainstem Columbia River fisheries not to exceed 23.0 percent for LCN coho, and (3) a total exploitation rate not to exceed 16.0 percent for the Trinity River component of SONCC coho and a total exploitation rate not to exceed 15.0 percent for all other components of the SONCC coho ESU. Furthermore, coho retention is prohibited in all California ocean fisheries.

- Salmon FMP conservation objectives and obligations under the PST Southern Coho Management Plan for stocks originating along the Washington coast, Puget Sound, and British Columbia as provided in Section 6.2 above. The forecasts for Washington coastal coho stocks are abundant in 2022; these stocks contribute to fisheries off Washington. Forecasts for some Puget Sound and Interior Fraser coho stocks in 2022 are low; however, the majority of the exploitation on these stocks occurs in Puget Sound and will be addressed in development of fishing seasons for inside waters during the North of Falcon co-management process by the state and tribes of Washington prior to the April Council meeting. Because of their abundance status, Interior Fraser coho are subject to an exploitation rate ceiling of 10.0 percent in southern U.S. fisheries under the PST Southern Coho Management Plan.

Descriptions pertaining to the achievement of key objectives for coho salmon management are found below.

- *LCN coho.* All Alternatives satisfy the maximum 23.0 percent exploitation rate when 2022 projected marine impacts are combined with 2021 modeled impacts for mainstem Columbia River fisheries. In-river fisheries have yet to be shaped for 2022. Marine exploitation rates projected for the 2022 Alternatives range from 14.2 percent to 11.1 percent.
- *Queets natural coho.* The FMP MSY adult spawner objective for Queets natural coho is 5,800; projected ocean escapement values for the 2022 Alternatives range from 15,000 to 15,700. The preseason ocean age 3 forecast for Queets natural coho is 18,200.
- *Interior Fraser coho*. The Southern U.S. exploitation rate is less than the 10.0 percent limit required by the PST Southern Coho Management Plan in all Alternatives when 2022 projected marine impacts are combined with the 2021 preseason modeled impacts for Puget Sound fisheries. Shaping of the State and Tribal inside fisheries will occur during the North of Falcon process, and ocean fisheries may require further shaping before final management measures are adopted in order to comply with the PST limit.
- *Puget Sound coho*. Total exploitation rates for all Puget Sound stocks are less than the maximum allowed under the FMP matrix in all Alternatives when 2022 projected marine impacts are combined with the 2021 preseason modeled impacts for Puget Sound fisheries. Snohomish coho, recently designated as overfished, currently meets the criteria for 'not overfished/rebuilding' status. As part of the rebuilding plan, a buffered S_{MSY} is in place, which increases the abundance breakpoint between low/normal status. For 2022, the abundance forecast is below the low/normal breakpoint, limiting the total exploitation rate to 40 percent. Shaping of the State and Tribal inside fisheries will occur during the North of Falcon process, and ocean fisheries may require further shaping before final management measures are adopted in order to comply with the FMP limits.

All of the Alternatives for coho fisheries satisfy NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for relevant coho stocks other than those listed above (Table 5).

8.1.3 Pink Salmon

Pink salmon runs occur in odd-numbered years in waters under Council jurisdiction and will not be an important management consideration in 2022.

8.1.4 Summary of Environmental Impacts on Target Stocks

Stock forecasts for some Canadian Chinook and coho stocks, Oregon Coast Chinook stocks, and the actual PST limits on Canadian AABM Chinook fisheries are not known at this time, and preliminary values have been used in the analyses presented in this report. These forecasts and limits are expected to be available prior to the April Council meeting. Negotiations in the North of Falcon process will not be completed until

the April Council meeting. These negotiations affect allocation of stock impacts primarily among inside fisheries (State, Tribal, recreational, various commercial sectors, etc.) but also between inside and ocean fisheries.

Environmental impacts on salmon stocks are assessed based on compliance with conservation objectives, ACLs, rebuilding plans, and ESA consultation standards. As noted in the description of the Alternatives (Tables 1, 2, and 3), if analyses using the updated values and the results of these negotiations do not result in compliance with FMP conservation objectives or ESA consultation standards, some Alternatives will not be viable and impacts in Council area fisheries will need to be modified to comply with all applicable objectives and standards. If updated values and negotiations result in compliance with applicable objectives and standards, Council area fishery impacts would not increase; therefore, the analysis of effects would include the upper bound of a reasonable range of effects under the Alternatives considered for 2022 Council area ocean salmon fisheries.

8.1.4.1 Targeted Salmon Stocks

Based on current assumptions regarding Canadian, and inside fishery impacts, all target salmon stocks (non-ESA listed) meet their FMP conservation objectives under Alternatives I, II, and III (Table 5).

8.1.4.2 ESA Listed Salmon Species

Based on current assumptions regarding Canadian and inside fishery impacts, impacts on all ESA listed salmon species meet their ESA consultation standards, except for LCR natural tule Chinook, which exceeds the allowable limit under Alternatives I and II when combined with projections for Canadian AABM Chinook fisheries and preliminary 2022 preseason harvest rates for Columbia River fisheries (Table 5).

Council area fisheries have a minor impact on ESA-listed Puget Sound Chinook and on most Chinook stocks subject to the 2019 PST Agreement. At this point there appears to be sufficient flexibility within Council and inside area fisheries as a whole to achieve protection for the Puget Sound Chinook ESU.

8.2 Socioeconomics

In general, Council-area ocean salmon fisheries are managed to meet conservation objectives for stocks that are expected to achieve optimum yields while minimizing impacts on depressed stocks. While analysis of biological impacts is organized around salmon stocks that spawn in particular rivers, socioeconomic impacts under the regulatory Alternatives are analyzed by ocean fishery management areas as described in the Salmon FMP. Although most stocks range across several areas, the abundance of individual stocks varies by time and area, thus the use of management areas facilitates more optimal management of each stock than would be possible with coastwide regulations. From north to south, the fishery management areas are: (1) from the U.S./Canada border to Cape Falcon (45°46' N. lat.), which is on the Oregon coast south of the Columbia River mouth; (2) between Cape Falcon and Humbug Mountain (42°40' N. lat.) on Oregon's southern coast; (3) the Oregon KMZ, which covers ocean waters from Humbug Mountain to the Oregon/California border (42° N. lat.); (4) the California KMZ includes the area from the Oregon/California border to Latitude 40°10' N. in northern California, (5) from Latitude 40°10' N. to Point Arena (38°57' N. lat.) in Mendocino County; (6) from Point Arena to Pigeon Point (37°11' N. lat.) north of Santa Cruz; and (7) from Pigeon Point to the U.S./Mexico border. There are also numerous subdivisions within these areas that are used to further balance stock conservation and harvest allocation needs. The following analysis of impacts on users of the resource and fishing communities is organized around these seven broad management areas. Figure 3 provides a map of the boundaries of these areas, also showing the main salmon ports.

Tribal ocean fisheries (including Washington State statistical area 4B) occur only in the area north of Cape Falcon. The Lower Elwha Klallam, Jamestown S'Klallam, Port Gamble S'Kallam, Makah, Quileute, Hoh,

and Quinault Tribes all have fishery areas in the northern part of the area north of Cape Falcon (Table 3). Other federally-recognized tribes participate in in-river fisheries.

The Review of 2021 Ocean Salmon Fisheries (PFMC 2022b) provides an historical description of the salmon fishery affected environment. In addition to stock status assessments, the document reports socioeconomic impacts of historical fisheries and analyzes the current socioeconomic status of West Coast salmon fisheries. For the purpose of characterizing the socioeconomic impact of non-tribal Council-area ocean salmon fisheries, commercial exvessel value, recreational fishing trips, and community level personal income impacts resulting from both commercial and recreational fishing activities are used.

The short-term economic effects of the regulatory Alternatives for non-Indian fisheries are shown in Tables 9 and 10. Table 9 shows projected commercial troll impacts expressed in terms of estimated potential exvessel value by catch area. Table 10 shows projected recreational fisheries impacts in terms of the number of projected angler-trips and community personal income impacts associated with those activities by port area. Note that exvessel values shown under the Alternatives for the commercial troll fishery in Table 9 and income impact values shown for the recreational fishery in Table 10 are not directly comparable. More directly comparable measures of short-term economic impacts from commercial and recreational salmon fisheries appear in Figures 1 and 2, which show estimated community income impacts under the respective sets of commercial troll and recreational fishery Alternatives, compared to historical impacts in real (inflation-adjusted) dollars. Both commercial and recreational income impact estimates provided in these figures are based on landing ports. In general, income impacts are estimates of the amount of personal income generated by the economic linkages associated with a particular activity (see Chapter IV of the Review of 2021 Ocean Salmon Fisheries for additional description of income impact estimates). Income impacts are a measure of relative economic activity. Differences in income impacts between an Alternative and the value for the 2021 fishery indicate the expected short-term impact of the Alternative compared with taking no action, (i.e., if 2021 regulations were to remain in place). Differences in income impacts between an Alternative and recent inflation-adjusted average values provide context for the current estimates within recent historical trends. While reductions in income impacts associated with an activity may not necessarily reflect net losses in a particular community, they are likely to indicate losses to the community's businesses and individuals that depend on that activity for their livelihood.

Total economic effects for non-Indian fisheries under the Alternatives may vary more or less than is indicated by the short-term impacts on ocean fisheries reported below. Salmon that are not harvested in the ocean do not necessarily result in an economic loss, as they may become available for additional inside harvest in non-Indian commercial, tribal, and recreational fisheries or may provide additional spawning escapement. Thus, Alternatives that restrict ocean harvests may increase opportunities for inside harvesters (e.g., higher commercial revenue or more angler trips) or contribute to higher inside CPUE (i.e., lower costs for commercial harvesters and/or higher success rates for recreational fishers). Additionally, harvest forgone by both ocean fisheries and inside fisheries may impact future production, although the magnitude of that effect is uncertain and depends on the resulting escapement level compared to MSY escapement and the nature of the spawner-recruit relationship, both of which are influenced by habitat conditions in the ocean and in the spawning grounds.

Exvessel revenues in Table 9 are based on estimated harvest by catch area while commercial income impacts in Figure 1 are based on projected deliveries by landing area. Historically, there has been a divergence between these two measures. The difference is due to salmon caught in certain catch areas being delivered to ports in neighboring catch areas. In an attempt to account for this effect and assign income impacts to the "correct" landing area, adjustments to projections are made based on historical patterns. The patterns are typically inferred from the most recent year's catch and landings data. For example, 2021 data shows there were deliveries of salmon: (1) caught north of Cape Falcon to landing ports between Cape Falcon and Humbug Mountain; (2) caught between Cape Falcon and Humbug Mountain to

landing ports in the Oregon KMZ region; (3) caught between 40°10' N. Lat and Point Arena (Fort Bragg Region) to landing ports in the California KMZ region (Crescent City and Eureka); (4) caught between Point Arena and Pigeon Point (San Francisco Region) to landing ports in the California KMZ region), Fort Bragg region and south of Pigeon Point (Monterey region); and (5) caught south of Pigeon Point to landing ports in the San Francisco region.

The expected harvest levels used to model commercial fishery impacts are taken from Table 6. Estimated harvests do not include a relatively small amount occurring in the state-waters-only (SWO) fishery off southern Oregon as this fishery is not expected to be prosecuted in 2022. These total harvest estimates combined with the prior year's average Chinook weights per fish and exvessel prices per pound were assumed to be the best indicators of expected revenues per fish in the coming season. Coastwide average Chinook weight per fish in 2021 was approximately two percent above the prior year and three percent above the recent five-year average; while coastwide average Chinook exvessel prices in 2021 were six percent above the prior year but five percent below the recent five-year average in inflation-adjusted terms. If this year's actual average weight per fish or exvessel prices diverge significantly from what was observed last year, then salmon exvessel revenues and resulting commercial fisheries income impacts projected in this document may prove to be correspondingly biased.

Fishing effort estimates for the recreational fishery south of Cape Falcon are based on measures developed by the STT for modeling biological impacts. STT estimates for south of Cape Falcon use multi-year averages to predict effort for the coming year. Consequently, if the multi-year average for a particular time period and area happens to be higher than last year's effort level, then the model may forecast an increase in effort for the coming year even if management measures did not change from the previous year. Estimated recreational effort does not include a relatively small amount that often occurs in the SWO fishery off southern Oregon as this fishery is not expected to be prosecuted in 2022. Recreational fishery effort north of Cape Falcon was estimated using historical CPUE estimates ("success rates") applied to salmon quotas and expected harvest levels under the Alternatives. Projections of recreational catch north of Cape Falcon were made by multiplying the proposed quotas for the two species under each Alternative by the historic ratios of actual catch to the actual quotas. Effort and economic impacts were then estimated by summing recent year weighted average coho and Chinook angler success rates multiplied by the projected coho and Chinook catch under each Alternative. Unless otherwise noted, the economic effects of the commercial and recreational fisheries Alternatives summarized below are compared in terms of estimated community income impacts.

8.2.1 Alternative I

Under Alternative I, overall coastwide community personal income impacts from commercial salmon fisheries are projected to be 26 percent below last year's (2021) level and slightly above the recent (2017-2021) inflation-adjusted average. Coastwide income impacts from recreational fishing are projected to be 63 percent above last year's level and 82 percent above the 2017-2021 inflation-adjusted average.

Commercial fishery income impacts north of Cape Falcon are projected to be 106 percent above last year and 96 percent above the 2017-2021 inflation-adjusted average.

South of Cape Falcon, overall commercial fishery income impacts are projected to fall below last year's level by 38 percent and below the 2017-2021 inflation-adjusted average by 13 percent. A mix of commercial fishery income impacts are projected for areas south of Cape Falcon, with areas between Cape Falcon and Humbug Mountain and between Humbug Mountain and the Oregon/California border projected to see increases of 190 percent and 76 percent, respectively, compared with last year. However, all areas in California would see projected decreases ranging from 16 percent to 69 percent compared with last year. While areas between the Oregon/California border and 40º10' N. Lat. (California KMZ) would be closed

to commercial fishing, deliveries from catch areas to the south are projected to result in income impacts in ports in the region 16 percent lower compared with last year, but 22 percent above the 2017-2021 inflation-adjusted average. The greatest decrease compared with last year in percentage terms (69 percent) is projected for the area between Point Arena and Pigeon Point. Areas south of Cape Falcon would see projected changes in commercial fishery income impacts compared to the 2017-2021 inflation-adjusted average ranging from an increase of 232 percent (Cape Falcon to Humbug Mountain) to a decrease of 59 percent (Point Arena to Pigeon Point).

Income impacts from recreational fisheries north of Cape Falcon are projected to be 191 percent above last year and 224 percent above the 2017-2021 inflation-adjusted average.

Overall recreational fishery income impacts south of Cape Falcon are projected to be 14 percent above last year and 27 percent above the 2017-2021 inflation-adjusted average. Recreational income impacts are projected be above last year's levels and the 2017-2021 inflation-adjusted average in all four areas in California, but below last year' levels in the areas between Cape Falcon and Humbug Mountain and between Humbug Mountain and the Oregon/California border by 17 percent and by 61 percent, respectively. Projected increases in recreational fishery income impacts compared with last year for areas in California range from eight percent for the area south of Pigeon Point to 353 percent for areas between the Oregon/California border and 40º10' N. Lat. (California KMZ).

Under Alternative I overall coastwide income impacts for combined non-Indian commercial and recreational ocean salmon fisheries are projected to be 16 percent above last year's level and 42 percent above the 2017-2021 inflation-adjusted average. Combined income impacts north of Cape Falcon are projected to be 168 percent above last year's level and 186 percent above the 2017-2021 inflation-adjusted average. In aggregate, combined income impacts south of Cape Falcon are projected to be 17 percent below last year's level but six percent above the 2017-2021 inflation-adjusted average. Combined income impacts are projected to be below last year's levels in four of the six areas south of Cape Falcon, ranging from decreases of nine percent for areas between Humbug Mountain and Oregon/California border, to 38 percent between Point Arena and Pigeon Point. Increases in combined income impacts compared with last year are projected for Cape Falcon to Humbug Mountain (51 percent) and Oregon/California border and 40º10' N. Lat. (California KMZ) (123 percent). Compared with the 2017-2021 inflation-adjusted average, reductions are projected for the areas between Humbug Mountain and the Oregon/California border and between Point Arena and Pigeon Point, but all other areas south of Cape Falcon are projected to see increases ranging from 35 percent south of Pigeon Point to 106 percent (Cape Falcon to Humbug Mountain).

Tribal ocean fisheries north of Cape Falcon would be allocated 50,000 Chinook and 62,000 coho for ocean area harvest under Alternative I. These compare with the actual 2021 allocation of 40,000 Chinook and 26,500 coho.

8.2.2 Alternative II

Under Alternative II, overall coastwide community personal income impacts from commercial salmon fisheries are projected to be 30 percent below last year's (2021) level and five percent below the recent (2017-2021) inflation-adjusted average. Coastwide income impacts from recreational fishing are projected to be 51 percent above last year's level and 69 percent above the 2017-2021 inflation-adjusted average.

Commercial fishery income impacts north of Cape Falcon are projected to be 88 percent above last year and 79 percent above the 2017-2021 inflation-adjusted average.

South of Cape Falcon, overall commercial fishery income impacts are projected to fall below last year's level by 41 percent and below the 2017-2021 inflation-adjusted average by 17 percent. Compared with last

year's levels, all areas north of Oregon/California border are projected to see increases in commercial fishery income impacts and all areas to the south of the boarder are projected to see decreases. The areas between Cape Falcon and Humbug Mountain and between Humbug Mountain and the Oregon/California border are projected to see increases compared with last year of 120 percent and 10 percent, respectively. Decreases in commercial fisheries income impacts are projected for all four areas in California, ranging from reductions of 19 percent south of Pigeon Point to 80 percent for areas between 40º10' N. Lat. and Point Arena. Although areas between the Oregon/California border and 40º10' N. Lat. (California KMZ) would be closed to commercial fishing, deliveries from catch areas to the south are projected to result in decreases in income impacts to ports in the region of 54 percent compared with last year and 33 percent compared with the 2017-2021 inflation-adjusted average.

All areas south of Cape Falcon except areas between Cape Falcon and Humbug Mountain and areas south of Pigeon Point are projected to see reductions in commercial fishery income impacts compared to the 2017-2021 inflation-adjusted average, ranging from decreases of four percent (Humbug Mountain to the Oregon/California border) to 44 percent (Point Arena to Pigeon Point). For the south of Cape Falcon areas projected to have increases in commercial fishery income impacts compared to the 2017-2021 inflation-adjusted averages, the projected increases are two percent (south of Pigeon Point) and 151 percent (Cape Falcon to Humbug Mountain).

Projected income impacts from recreational fisheries north of Cape Falcon are 158 percent above last year and 187 percent above the 2017-2021 inflation-adjusted average.

Overall recreational fishery income impacts south of Cape Falcon are projected to be 10 percent above last year and 23 percent above the 2017-2021 inflation-adjusted average. Recreational income impacts are projected be above last year's level in five of the six areas south of Cape Falcon, with projected increases ranging from six percent in areas between Humbug Mountain and the Oregon/California border to 385 percent between the Oregon/California border and 40º10' N. Lat. (California KMZ). A decrease of 22 percent compared with last year is projected between for areas between Cape Falcon and Humbug Mountain.

Recreational income impacts are projected to be above the 2017-2021 inflation-adjusted average in all areas south of Cape Falcon, with increases ranging from less than one percent for areas between Point Arena and Pigeon Point to 161 percent for areas between the Oregon/California border and 40º10' N. Lat. (California KMZ).

Under Alternative II overall coastwide income impacts for combined non-Indian commercial and recreational salmon fisheries are projected to be eight percent above last year's level and 33 percent above the 2017-2021 inflation-adjusted average. Combined income impacts north of Cape Falcon are projected to be 139 percent above last year's level and 155 percent above the 2017-2021 inflation-adjusted average. In aggregate, combined income impacts south of Cape Falcon are projected to be 20 percent below last year's level but two percent above the 2017-2021 inflation-adjusted average. Combined income impacts are projected to be below last year's levels in three of the six areas south of Cape Falcon, ranging from reductions of four percent south of Pigeon Point to 53 percent between 40º10' N. Lat. and Point Arena. The other three areas south of Cape Falcon are projected to see increases compared with last year in combined income impacts ranging from seven percent (Humbug Mountain and the Oregon/California border) to 112 percent (Oregon/California border to 40º10' N. Lat.). Compared with the 2017-2021 inflation-adjusted average all areas are projected to see increases in combined income impacts, except a reduction of 25 percent is projected in the area between Point Arena and Pigeon Point.

Tribal ocean fisheries north of Cape Falcon would be allocated 40,000 Chinook and 52,000 coho for ocean area harvest under Alternative II. These compare with the actual 2021 allocation of 40,000 Chinook and 26,500 coho.

8.2.3 Alternative III

Under Alternative III, overall coastwide community personal income impacts from commercial salmon fisheries are projected to be 26 percent below last year's (2021) level and one percent below the recent (2017-2021) inflation-adjusted average. Coastwide income impacts from recreational fishing are projected to be 34 percent above last year's level and 50 percent above the 2017-2021 inflation-adjusted average.

Commercial fishery income impacts north of Cape Falcon are projected to be 66 percent above last year and 58 percent above the 2017-2021 inflation-adjusted average.

South of Cape Falcon, overall commercial fishery income impacts are projected to fall below last year's level by 35 percent and below the 2017-2021 inflation-adjusted average by nine percent. All areas north of Oregon/California border are projected to see increases in commercial fishery income impacts compared with last year's levels. Decreases in commercial fisheries income impacts are projected for all four areas in California, ranging from reductions of 11 percent south of Pigeon Point to 93 percent for areas between 40º10' N. Lat. and Point Arena. Although areas between the Oregon/California border and 40º10' N. Lat. (California KMZ) would be closed to commercial fishing, deliveries from catch areas to the south are projected to result in income impacts in ports in the region that are 71 percent lower than last year and 58 percent below the 2017-2021 inflation-adjusted average. The areas between Cape Falcon and Humbug Mountain and between Humbug Mountain and the Oregon/California border are projected to see increases compared with last year of 151 percent and 128 percent, respectively. These two areas are also projected to see increases compared with the 2017-2021 inflation-adjusted average of 187 percent and 99 percent, respectively.

All areas in California except areas south of Pigeon Point would see projected reductions in commercial fishery income impacts compared with the 2017-2021 inflation-adjusted average, ranging from decreases of 37 percent (Point Arena to Pigeon Point) to 79 percent (40º10' N. Lat. and Point Arena). The area south of Pigeon Point would see a projected increase in commercial fishery income impacts compared to the 2017-2021 inflation-adjusted average of 12 percent.

Income impacts from recreational fisheries north of Cape Falcon are projected to be 123 percent above last year and 149 percent above the 2017-2021 inflation-adjusted average.

Overall recreational fishery income impacts south of Cape Falcon are projected to be slightly below last year's level but 11 percent above the 2017-2021 inflation-adjusted average. Recreational income impacts are projected be above last year's level in four of the six areas south of Cape Falcon, with projected increases ranging from seven percent for areas south of Pigeon Point to 93 percent for areas between the Oregon/California border and 40º10' N. Lat. (California KMZ) and between 40º10' N. Lat. and Point Arena. Decreases in recreational income impacts compared with last year of 47 percent and 37 percent are projected for areas between Cape Falcon and Humbug Mountain and between Humbug Mountain and the Oregon/California border, respectively.

Recreational income impacts are projected be above the 2017-2021 inflation-adjusted average in three of the six areas south of Cape Falcon, with increases ranging from four percent for areas between the Oregon/California border and 40º10' N. Lat. (California KMZ) to 130 percent for areas between 40º10' N. Lat. and Point Arena. Reductions in recreational income impacts compared with the 2017-2021 inflation-adjusted average are projected for the remaining three areas south of Cape Falcon, ranging from three

percent for areas between Point Arena and Pigeon Point to 23 percent for areas between Humbug Mountain and the Oregon/California border.

Under Alternative III overall coastwide income impacts for combined non-Indian commercial and recreational salmon fisheries are projected to be two percent above last year's level and 25 percent above the 2017-2021 inflation-adjusted average. Combined income impacts north of Cape Falcon are projected to be 108 percent above last year's level and 122 percent above the 2017-2021 inflation-adjusted average. In aggregate, combined income impacts south of Cape Falcon are projected to be 21 percent below last year's level but slightly above the 2017-2021 inflation-adjusted average. Combined income impacts are projected to be below last year's levels in four of the six areas south of Cape Falcon, ranging from reductions of one percent south of Pigeon Point to 55 percent between 40º10' N. Lat. and Point Arena. Combined income impacts are projected to be below the 2017-2021 inflation-adjusted average in two areas, i.e., between the Oregon/California border and 40º10' N. Lat. (California KMZ) (20 percent) and between Point Arena and Pigeon Point (22 percent).

Tribal ocean fisheries north of Cape Falcon would be allocated 30,000 Chinook and 42,000 coho for ocean area harvest under Alternative III. These compare with the actual 2021 allocation of 40,000 Chinook and 26,500 coho.

8.2.4 Summary of Impacts on the Socioeconomic Environment

The commercial salmon fishery Alternatives are projected to generate coastwide income impacts below last year's (2021) levels, ranging from reductions of 26 percent under Alternatives I and III to 30 percent under Alternative II. These levels also represent projected changes relative to the recent (2017-2021) inflation-adjusted averages ranging from a slight increase under Alternative I, a slight decrease under Alternative III to a reduction of five percent under Alternative II.

North of Cape Falcon, commercial salmon fisheries income impacts are projected to be above last year and the 2017-2021 inflation-adjusted average under all three Alternatives. With respect to the area south of Cape Falcon, compared with last year, all areas in California would see decreases under all three Alternatives, while the areas between Cape Falcon and Humbug Mountain and between Humbug Mountain and the Oregon/California border would see projected increases under all three Alternatives. The area from the Oregon/California border to 40º10' N. Lat. (California KMZ) would be closed to commercial fishing under all three Alternatives, although some landings to ports in the region from catch areas to the south is expected.

Compared with the other Alternatives, projections for Alternative I show the least negative overall, coastwide commercial fisheries impacts, and the most positive or least negative commercial fisheries income impacts for four of the seven management areas: North of Cape Falcon, Cape Falcon to Humbug Mountain, Oregon/California border to 40º10' N. Lat. (California KMZ), and 40º10' N. Lat. to Point Arena. Projections for Alternative II include the most negative commercial fisheries income impacts coastwide and overall south of Cape Falcon, and also the least positive commercial fisheries income impacts for two of the seven management areas: Cape Falcon to Humbug Mountain, and Humbug Mountain to the Oregon/California border. Projections for Alternative III include the least negative commercial fisheries income impacts overall south of Cape Falcon, and the most positive or least negative commercial fisheries income impacts for three areas: Humbug Mountain to the Oregon/California border, Point Arena to Pigeon Point and south of Pigeon Point.

Total coastwide income impacts from recreational salmon fisheries are projected to be above last year's (2021) levels by 34 percent under Alternative III, by 51 percent under Alternative II and by 63 percent under Alternative I. Compared with the 2017-2021 inflation-adjusted average, coastwide recreational

fishery income impacts are projected to increase under all three Alternatives: by 50 percent under Alternative III, 69 percent under Alternative II and by 82 percent under Alternative I. Compared with last year, five management areas would see projected increases in recreational fishery income impacts under all three Alternatives: north of Cape Falcon, the Oregon/California border to 40º10' N. Lat. (California KMZ), 40º10' N. Lat. to Point Arena, Point Arena to Pigeon Point, and south of Pigeon Point. Cape Falcon to Humbug Mountain is the only area projected to see decreases in recreational fisheries income impacts compared with last year under all three Alternatives. Humbug Mountain to the Oregon/California border would see decreases under Alternatives I and III, but an increase under Alternative II (6 percent relative to last year).

Compared with the 2017-2021 inflation-adjusted average, six of the seven areas are projected to see increases in recreational fishery income impacts under Alternative I (i.e., all areas except Humbug Mountain to the Oregon/California border), and all seven areas are projected to see increases in recreational fishery income impacts under Alternative II. Under Alternative III, four of seven areas would see projected increases in recreational fishery income impacts relative to the 2017-2021 inflation-adjusted average: north of Cape Falcon, the Oregon/California border to 40º10' N. Lat. (California KMZ), 40º10' N. Lat. to Point Arena, and south of Pigeon Point.

Total coastwide income impacts from combined non-Indian commercial and recreational salmon fisheries are projected to be above last year's (2021) levels under all three Alternatives: by two percent under Alternative III, eight percent under Alternative II and by 16 percent under Alternative I. Three of the seven management areas (40º10' N. Lat. to Point Arena, Point Arena to Pigeon Point, and south of Pigeon Point) plus the region south of Cape Falcon overall are projected to see decreases in combined commercial and recreational salmon fishery income impacts compared with last year under all three Alternatives. The areas north of Cape Falcon and between Cape Falcon and Humbug Mountain are projected to see increases compared with last year in combined coastwide income impacts under all three Alternatives. The area from Humbug Mountain to the Oregon/California border is projected to see decreases compared with last year under Alternative I but increases under Alternative II and III. The area from the Oregon/California border to 40º10' N. Lat. is projected to see decreases compared with last year under Alternative III but increases under Alternative I and II.

Combined coastwide income impacts are projected to be above the 2017-2021 inflation-adjusted average under all three Alternatives: by 25 percent under Alternative III, 33 percent under Alternative II and by 42 percent under Alternative I. Only one of the seven management areas (Point Arena to Pigeon Point) is projected to see a decrease in combined commercial and recreational salmon fishery income impacts compared with the 2017-2021 inflation-adjusted average under all three Alternatives. Regarding other areas showing projected decreases relative to the 2017-2021 inflation-adjusted average, under Alternative I Point Arena to Pigeon Point would be joined by Humbug Mountain to the Oregon/California border, and under Alternative III Point Arena to Pigeon Point would be joined by Oregon/California border to 40º10' N. Lat. (California KMZ) in showing projected decreases in combined commercial and recreational salmon fishery income impacts compared with the 2017-2021 inflation-adjusted average.

Under the three Alternatives, ocean tribal fisheries occurring north of Cape Falcon would be allocated a maximum of 50,000 Chinook and 62,000 coho under Alternative I, 40,000 Chinook and 52,000 coho under Alternative II, and 30,000 Chinook and 42,000 coho under Alternative III. These compare with the 2021 actual allocation of 40,000 Chinook and 26,500 coho.

8.3 Non-target, Non-ESA Listed, Fish Species

Prior NEPA analyses have considered the effects of the ocean salmon fisheries on non-target, non-ESA listed fish species. Since then, ocean salmon fisheries have not changed substantially in terms of season

length, areas, depth, bag limits, etc. Nor is there any new information to suggest that the incidental nature of encounters of non-target species in ocean salmon fisheries has changed. Therefore, conclusions from previous environmental analyses indicating that effects on non-target fish species are low and not significant are still applicable, as discussed below. The differences between the Alternatives for the 2022 salmon fishery are not discernible with respect to their effect on non-target fish species.

Impacts to groundfish stocks from salmon troll fisheries continue to be managed as part of the open access groundfish fishery sector, and are at similar levels compared to recent years. Previous environmental analysis concluded that the amount of groundfish taken incidentally in the salmon fishery is very low and is not substantially altered by changes in the salmon fishery. The 2022 ocean salmon regulation Alternatives are not expected to differ substantially from fisheries analyzed previously with respect to groundfish impacts; therefore, effects from the Alternatives to groundfish stocks are not significant.

Impacts to Pacific halibut from salmon troll fisheries continue to be managed under limits established through the International Pacific Halibut Commission (IPHC) process and under the Area 2A (Council area) catch sharing plan. Previous environmental analysis stated that data on the commercial segment of salmon fisheries show the co-occurrence rates for salmon and halibut, coastal pelagic species, highly migratory species, and non-Council managed fish species are low. The 2022 ocean salmon regulation Alternatives include Pacific halibut landing restrictions within the range enacted in the past, and are not expected to differ substantially from earlier analyses with respect to Pacific halibut impacts; therefore, effects from the Alternatives to Pacific halibut are not significant. Likewise, there are no changes to the salmon fishery for 2022 that would change impacts to other non-salmon fish species compared to previous analyses, therefore, effects from the Alternatives to these species are not expected to be significant.

8.4 Non-ESA Listed Marine Mammals

The commercial salmon troll fisheries off the coasts of Washington, Oregon, and California are classified as Category III fisheries, indicating a remote or no likelihood of causing incidental mortality or serious injury to marine mammals (86 FR 3028, January 14, 2021). Recreational salmon fisheries use similar gear and techniques as the commercial fisheries and are assumed to have similar encounter rates and impacts. The non-ESA listed marine mammal species that are known to interact with ocean salmon fisheries are California sea lion and harbor seals. Populations of both these species are at stable and historically high levels. There is no new information to suggest that the nature of interactions between California sea lions or harbor seals in ocean salmon fisheries has changed since the Category III determination. Therefore, the impacts from the 2022 salmon regulation Alternatives to non-ESA listed marine mammals are not expected to be significant, and there is no discernible difference between the effects of the Alternatives on these resources.

8.5 ESA Listed Species

ESA-listed salmonid species present in Council area waters are described in Chapter 5 of this document. ESA-listed sockeye and chum salmon, and steelhead trout are rarely encountered in ocean salmon fisheries, and the Alternatives for Council area ocean salmon fisheries are in compliance with applicable BOs for listed ESUs of these species as listed in Chapter 5 of this document. Because anticipated impacts are negligible, there are no significant impacts expected on listed sockeye or chum salmon or steelhead trout from the Alternatives analyzed in this EA, and there is no discernible difference between the effects of the Alternatives on these resources.

There is no record of injury or mortality of Guadalupe fur seals in Pacific Coast salmon fisheries. No sea turtles have been reported taken by the ocean salmon fisheries off Washington, Oregon, or California, and NMFS has determined that commercial fishing by Pacific Coast salmon fisheries would pose a negligible

threat to Pacific turtle species. There is no discernible difference between the effects of the alternatives on these resources.

Of the ESA-listed marine mammals that occur in Council area waters, only Southern Resident killer whales (SRKW), a distinct population segment (DPS) of *Orcinus orca*, are likely to be affected by salmon fisheries. The "resident" killer whale ecotype is dependent on fish as a prey item; the primary prey for the SRKW DPS is Chinook salmon (SRKW Workgroup 2020). The SRKW DPS occurs regularly throughout the coastal waters of the states of Washington, Oregon, and Vancouver Island, British Columbia, Canada; individuals are known to travel as far south as central California and as far north as Southeast Alaska (SRKW Workgroup 2020).

Salmon fisheries conducted under the FMP may directly affect SRKW through interactions with vessels and gear, and indirectly affect them by reducing prey availability. The risk assessment report, prepared by the Council's Ad-Hoc Southern Resident Killer Whale Workgroup (SRKW Workgroup 2020), presented at the Council's March 2020 meeting, provides the most current information on SRKW and their predator-prey interaction with Pacific salmon. The report can be found online at: https://www.pcouncil.org/documents/2020/02/e-3-a-srkw-workgroup-report-1-electronic-only.pdf/.

At its November 2020 meeting, based on the information compiled and analysis developed by the SRKW Workgroup, the Council adopted a final preferred alternative for a subsequent amendment to the FMP to include management provisions responsive to the needs of SRKW. These management provisions were incorporated into Amendment 21 of the FMP and set a Chinook salmon annual abundance management threshold below which the Council and NMFS would implement specific steps to limit ocean salmon fishery impacts on Chinook salmon in order to increase salmon prey availability for SRKW. This threshold is compared to the projected pre-fishing Chinook abundance in the north of Cape Falcon area calculated annually using forecasts compiled by the STT. The specific steps the Council would implement should the threshold be triggered include time and area closures and temporal shifts in fishing. In April 2020, NMFS completed a BO on the effects of implementing Amendment 21 of the FMP and concluded that the effects were not likely to jeopardize the continued existence of the SRKW DPS or destroy or adversely modify its designated or proposed critical habitat. Amendment 21 also provides for technical review and consideration of new data by the Council, the STT, and the SSC that may result in an updated threshold (PFMC 2021).

At their March 2022 meeting, the Council was informed of recent updates to models that may warrant an update to the numerical value of the abundance threshold. Based on these developments, the Council is following the process outlined in Amendment 21 to the FMP and will review this information prior to determining whether an update to the threshold is necessary. Given the time needed for these reviews, an update to the threshold for 2022 planning is unlikely.

As mentioned above, the annual management measures for Council salmon fisheries are developed to be consistent with all ESA BOs. In 2022, the projected pre-fishing Chinook abundance in the north of Cape Falcon area is 1,316,100, which is greater than the threshold value of 966,000, as identified in Amendment 21 of the FMP (Table 5).[2]

8.6 Seabirds

The types of vessels used in ocean salmon fisheries and the conduct of the vessels are not conducive to collisions or the introduction of rats or other non-indigenous species to seabird breeding colonies. Other types of accidental bird encounters are a rare event for commercial and recreational ocean salmon fisheries.

[2] This pre-fishing abundance is also above the preliminary assessments of thresholds associated with the new information under consideration by the Council consistent with Amendment 21 (Agenda Item D.4.a, Supplemental STT Report 2 and Agenda Item D.3.b Supplemental NMFS Presentation 1, March 2022.

Therefore, there are no significant impacts expected on seabirds from the Alternatives analyzed in this EA, and there is no discernible difference between the effects of the Alternatives on seabirds.

8.7 Biodiversity and Ecosystem Function

The removal of adult salmon by the ocean fisheries is not considered to significantly affect the lower trophic levels or the overall marine ecosystem because salmon are not the only or primary predator in the marine environment. Therefore, no significant impacts are expected on biodiversity or ecosystem function from the Alternatives analyzed in this EA, and there is no discernible difference between the effects of the Alternatives on these resources.

8.8 Ocean and Coastal Habitats

Council Area salmon fisheries do not employ bottom contact gear, and there is no evidence of direct gear effects on fish habitat from Council-managed salmon fisheries on essential fish habitat (EFH) for salmon or other managed species. Critical habitat for ESA listed salmon does not include Council area ocean water. Because Council area salmon fisheries are conducted at sea and without bottom contact gear, there is no interaction with unique geographic characteristics or other cultural, scientific, or historical resources such as those that might be listed on the National Register of Historical Places.

8.9 Public Health and Safety

Fisheries management can affect safety if, for example, season openings make it more likely that fishermen will have to go out in bad weather because fishing opportunities are limited. The Salmon FMP, however, has provisions to adjust management measures if unsafe weather affected fishery access. The Alternatives for 2022 ocean salmon regulations have season structures similar to those employed in previous salmon seasons and are not expected to result in any significant increase in the risk to human health or safety at sea. There are also no discernible differences between the effects of the Alternatives on the risk to human health or safety at sea.

8.10 Short term and Long Term Impacts

The purpose of long term and short term impacts 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.

8.10.1 Consideration of the Affected Resource

The affected resources that relate to the Pacific Coast salmon fishery are described in the Affected Environment sections of Preseason I and in Section 8.0 of this report. The significance of impacts will be discussed in relation to these affected resources listed below.

- Fishery and Fish Resources,
- Protected Resources,
- Biodiversity/Ecosystem Function and Habitats,
- Socioeconomics.

8.10.2 Geographic Boundaries

The analysis focuses on actions related to Council-managed ocean salmon commercial and recreational fisheries. Council-managed ocean fisheries occur in the exclusive economic zone (EEZ), from three to 200 miles offshore, off the coasts of the states of Washington, Oregon, and California as well as the ports in these states that receive landings from the ocean salmon fisheries. Since salmon are anadromous and spend part of their lifecycle in fresh water, the geographic scope also includes internal waters (e.g., Puget Sound) and rivers that salmon use to migrate towards their spawning grounds.

8.10.3 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). 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.

8.10.4 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. The Council manages ocean salmon fisheries through an intensive preseason analysis process to shape salmon fisheries impacts on salmon stocks within the parameters of the FMP conservation measures and ESA requirements.

Fisheries outside of the Council's jurisdiction also impact 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 PST. 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

Because salmon spend part of their lifecycle in fresh water, they are more vulnerable to a broad range of human activities (since humans spend most of their time on land) that affect the quantity and quality of these freshwater environments. These effects are generally well known and diverse. They include physical barriers to migration (dams), changes in water flow and temperature (often a secondary effect of dams or water diversion projects), and degradation of spawning environments (such as increased silt in the water from adjacent land use). 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).

Anomalously warm sea surface temperatures in the northeast Pacific Ocean developed in 2013 and continued to persist through much of 2015; this phenomenon was termed "the Blob." During the persistence of the Blob, distribution of marine species was affected (e.g., tropical, and subtropical species were documented far north of their usual ranges), marine mammals and seabirds starved, and a coastwide algal bloom that developed in the summer of 2015 resulted in domoic acid poisoning of animals at various trophic levels, from crustaceans to marine mammals. In 2015-2016, a very strong El Niño event disrupted the Blob, which was declared "dead" by climatologists in December 2015. The extent of the impact of The Blob on salmon and salmon fisheries has not yet been fully determined. It is also uncertain if or when environmental conditions would cause a repeat of this event, although evidence of resurgent blob-like conditions emerged in late 2019. NMFS' Northwest and Southwest Fisheries Science Centers presented information to the Council indicating that the broods that will contribute to 2022 harvest and escapement encountered generally poor to average ocean conditions (with some exceptions) in the California Current Ecosystem.

Within the California Current itself, scientists have described long-term warming trends in the upper 50 to 75 meters 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.

In addition, changes in river flows and flow variability may affect population growth of anadromous fishes. Ward et al. (2015) found that increases in variability in freshwater flows may have a more negative effect than any other climate signal included in their model. Some climate change models predict that in the Pacific Northwest, there will be warmer winters and more variable river flows, which may affect the ability

of anadromous fishes to recover in the future (Ward et al. 2015). However, our ability to predict future impacts on a large-scale ecosystem stemming from climate forcing events remains uncertain.

8.10.5 Magnitude and Significance of Proposed Action

The following section presents the short term and long term impacts 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.

8.10.5.1 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 PST. 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 degree of both short term and long term effects, including the proposed action, on the salmon fishery and fish resources are expected to be low positive and not significant.

8.10.5.2 Protected Resources

Past, present, and foreseeable future actions that affect ESA-listed salmon 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 BOs and stock productivity information provided by the states and analyzed by the STT. Fishery management actions have been taken to manage impacts on ESA-listed salmon, and the states have developed information to better inform fishery management decisions. Therefore, the magnitude and significance of cumulative effects, including the proposed action on ESA-listed salmon are expected to be low positive and not significant.

8.10.5.3 Biodiversity/Ecosystem Function and Habitats

Past, present, and foreseeable future actions that affect biodiversity/ecosystem function and habitats are considered to the extent practicable annually. When considering the proposed action's removal of adult salmon by the ocean fisheries in addition to past, present, and reasonably foreseeable future actions, such removal of these salmon is not considered to significantly affect the lower trophic levels or the overall marine ecosystem because salmon are not the only primary predator. In addition, Council area salmon fisheries are conducted at sea with hook-and-line gear and thus, there is no to negligible interactions expected with EFH for salmon or other managed species.

Salmon escapement to fresh water provides for spawning and for carrying marine derived nutrients to freshwater habitats. The importance of salmon carcasses in the transport of marine derived nutrients to freshwater habitats is described in Appendix A of the FMP and the related EA (see Final Environmental Assessment and Regulatory Impact Review; Pacific Coast Salmon Plan Amendment 18: Incorporating Revisions to Pacific Salmon Essential Fish Habitat, available on the Council's website: www.pcouncil.org) and also in the EIS for Puget Sound Chinook Harvest Resource Management Plan (Puget Sound Chinook Harvest Resource Management Plan FEIS. NMFS Northwest Region with Assistance from the Puget Sound Treaty Tribes and Washington Department of Fish and Wildlife. December 2004. 2 volumes, available on the NMFS West Coast Region website: http://www.westcoast.fisheries.noaa.gov/). Council fisheries are designed to provide escapement of salmon to provide for natural spawning and transport of marine derived nutrients.

8.10.5.4 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 2022a) 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. The magnitude and significance of cumulative effects, including the proposed action on the socioeconomic environment, is expected to be low positive, and not significant.

9.0 CONCLUSION

This analysis has identified no significant environmental impacts that would result from the 2022 ocean salmon regulation Alternatives, from final regulations selected from within the range presented in these Alternatives.

10.0 LIST OF AGENCIES AND PERSONS CONSULTED

The following public meetings were held as part of the salmon management process (Council-sponsored meetings in bold):

November 15-22, 2021:	**Pacific Fishery Management Council meeting**, via webinar.
January 21, 2022:	**Pacific Fishery Management Council meeting**, via webinar.
January 18-21, 2022:	**Salmon Technical Team meeting (Review preparation)**, on-line.
February 10:	California Fish and Game Commission meeting, on-line.
February 22-25:	**Salmon Technical Team meeting(Preseason Report I preparation)**, on-line.
March 2:	California Department of Fish and Wildlife public meeting, on-line.
February 28:	Oregon Ocean Salmon public meeting, on-line.
March 4 :	Washington Department of Fish and Wildlife public meeting, on-line.
March 8-14:	**Pacific Fishery Management Council meeting**, hybrid meeting in San Jose, CA and via webinar.
March 16:	North of Falcon meeting. Discussion of management objectives and preliminary fishery proposals for sport and commercial fisheries in Puget Sound and coastal Washington, with limited discussion of the Columbia River and ocean fisheries, on-line.
March 18:	Oregon Fish and Wildlife Commission meeting, on-line.
March 22-23:	**Public hearings on management options,** on-line meetings with focused discussions in Washington; Oregon; California.
March 30	North of Falcon, Puget Sound forum meeting, on-line.
April 1	North of Falcon, Ocean fisheries and Columbia River fisheries meeting, on-line.
April 8-13:	**Pacific Fishery Management Council meeting**, Hybrid meeting in Seattle, WA and via webinar.
April 20-21:	California Fish and Game Commission meeting, on-line.
April 22	Oregon Fish and Wildlife Commission meeting, on-line.

The following organizations were consulted and/or participated in preparation of supporting documents:

Northwest Indian Fisheries Commission
Columbia River Intertribal Fish Commission
West Coast Indian Tribes

National Marine Fisheries Service, West Coast Region, Sustainable Fisheries Division
National Marine Fisheries Service, Northwest Fisheries Science Center
National Marine Fisheries Service, Southwest Fisheries Science Center
U.S. Fish and Wildlife Service, Columbia River Fisheries Program Office
United States Coast Guard

California Department of Fish and Wildlife
Oregon Department of Fish and Wildlife
Washington Department of Fish and Wildlife

11.0 REFERENCES

PFMC. 2007. Final Environmental Assessment for Pacific Coast Salmon Plan Amendment 15: An Initiative to Provide for *De Minimis* Fishing Opportunity for Klamath River Fall-run Chinook Salmon. (Document prepared by the Pacific Fishery Management Council and National Marine Fisheries Service.) Pacific Fishery Management Council, 7700 NE Ambassador Place, Suite 101, Portland, Oregon 97220-1384.

PFMC. 2022a. Review of 2021 ocean salmon fisheries. Pacific Fishery Management Council, Portland, Oregon.

PFMC. 2022b. Preseason Report I: Stock abundance analysis and environmental assessment part 1 for 2022 ocean salmon fishery management measures. Pacific Fishery Management Council, Portland, Oregon.

SRKW Workgroup. 2020. Pacific Fishery Management Council Salmon Fishery Management Plan Impacts to Southern Resident Killer Whales: Final Draft Risk Assessment. PFMC Briefing Book for March 2020. Available at https://www.pcouncil.org/documents/2020/02/e-3-a-srkw-workgroup-report-1-electronic-only.pdf/ (website accessed November 6, 2020).

Ward, E.J., J.H. Anderson, T.J. Beechie, G.R. Pess, and M.J. Ford. 2015. Increasing hydrologic variability threatens depleted anadromous fish populations. Global Change Biology DOI: 10.1111/gcb.12847

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries - Council adopted. **(**Page 1 of 14)

A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
Model #: Coho-2214, Chinook 1322	Model #: Coho-2215, Chinook 1422	Model #: Coho-2216, Chinook 1522
1. Overall non-Indian TAC: 65,000 Chinook and 210,000 coho marked with a healed adipose fin clip (marked).	1. Overall non-Indian TAC: 60,000 Chinook and 185,000 coho marked with a healed adipose fin clip (marked).	1. Overall non-Indian TAC: 53,000 Chinook and 160,000 coho marked with a healed adipose fin clip (marked).
2. Non-Indian commercial troll TAC: 32,500 Chinook and 33,600 marked coho.	2. Non-Indian commercial troll TAC: 30,000 Chinook and 29,600 marked coho.	2. Non-Indian commercial troll TAC: 26,500 Chinook and 25,600 marked coho.
3. Trade: May be considered at the April Council meeting.	3. Trade: Same as Alternative 1.	3. Trade: Same as Alternative 1.
4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	4. Same as Alternative 1.	4. Same as Alternative 1.

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 2 of 14)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
Model #: Coho-2214, Chinook 1322	Model #: Coho-2215, Chinook 1422	Model #: Coho-2216, Chinook 1522
U.S./Canada Border to Cape Falcon • May 1-15. See 2021 management measures, which are subject to inseason action and the 2022 season described below. • May 16 through the earlier of June 29, or 21,500 Chinook. No more than 7,210 of which may be caught in the area between the U.S./Canada border and the Queets River, and no more than 5,790 of which may be caught in the area between Leadbetter Pt. and Cape Falcon (C.8). Open seven days per week (C.1). In the area between the U.S./Canada border and the Queets River the landing and possession limit is 100 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6). In the area between Leadbetter Pt. and Cape Falcon the landing and possession limit is 100 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6). All salmon, except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). When it is estimated that approximately 50% of the overall Chinook quota or any Chinook subarea guideline has been landed, inseason action may be considered to ensure the quota and subarea guidelines are not exceeded. In 2023, the season will open May 1 consistent with all preseason regulations in place in this area and subareas during May 16-June 30, 2022, including subarea salmon guidelines and quotas and weekly vessel limits except as described below for vessels fishing or in possession of salmon north of Leadbetter Point. This opening could be modified following Council review at its March and/or April 2023 meetings.	**U.S./Canada Border to Cape Falcon** • May 1-15. See 2021 management measures, which are subject to inseason action and the 2022 season described below. • May 16 through the earlier of June 29, or 20,000 Chinook. No more than 6,710 of which may be caught in the area between the U.S./Canada border and the Queets River, and no more than 5,380 of which may be caught in the area between Leadbetter Pt. and Cape Falcon (C.8). Same as Alternative 1 In the area between the U.S./Canada border and the Queets River, the landing and possession limit is 60 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6). In the area between Leadbetter Pt. and Cape Falcon landing and possession limit of 60 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6). Same as Alternative 1 Same as Alternative 1 In 2023, same as Alternative 1	**U.S./Canada Border to Cape Falcon** • May 1-15. See 2021 management measures, which are subject to inseason action and the 2022 season described below. • May 16 through the earlier of June 29, or 13,250 Chinook. No more than 4,450 of which may be caught in the area between the U.S./Canada border and the Queets River, and no more than 3,560 of which may be caught in the area between Leadbetter Pt. and Cape Falcon (C.8). Open five days per week (Fri.-Tues.) (C.1). In the area between the U.S./Canada border and the Queets River, the landing and possession limit is 50 Chinook per vessel per open period (Fri.-Tues.) (C.1, C.6). In the area between Leadbetter Pt. and Cape Falcon the landing and possession limit is 50 Chinook per vessel per open period (Fri-Tues.) (C.1, C.6). Same as Alternative 1 Same as Alternative 1 In 2023, same as Alternative 1

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – **Council adopted**. (Page 3 of 14)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
U.S./Canada Border to Cape Falcon • July 1 through the earlier of September 30, or 11,000 Chinook or 33,600 coho (C.8).	**U.S./Canada Border to Cape Falcon** • July 1 through the earlier of September 30, or 10,000 Chinook or 29,600 coho (C.8).	**U.S./Canada Border to Cape Falcon** • July 1 through the earlier of September 30, or 13,250 Chinook or 25,600 coho (C.8).
Open seven days per week. All salmon. Chinook minimum size limit of 27 inches total length. Coho minimum size limit of 16 inches total length (B, C.1). All coho must be marked with a healed adipose fin clip (C.8.d). No chum retention north of Cape Alava, Washington in August and September (C.4, C.7). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).	Same as Alternative 1, except open five days per week (Fri.-Tues.) (C.1).	Same as Alternative 1
Landing and possession limit of 150 marked coho per vessel per landing week (Thurs.-Wed.) (C.1).	Landing and possession limit of 100 marked coho per vessel per landing week (Thurs.-Wed.) (C.1).	Landing and possession limit of 50 marked coho per vessel per open period (Fri.-Tues.) (C.1).
When it is estimated that approximately 50% of the overall Chinook quota or any Chinook subarea guideline has been landed, inseason action may be considered to ensure the quota and subarea guidelines are not exceeded.	Same as Alternative 1	Same as Alternative 1 **In 2022**, vessels may not land any species of fish east of Port Angeles.
Vessels may not land fish east of the Sekiu River or east of the Megler-Astoria bridge.	Same as Alternative 1	For delivery to Washington ports <u>east of the Sekiu River</u>, vessels must notify WDFW at 360-249-1215 prior to crossing the Bonilla-Tatoosh line with area fished, total Chinook, coho and halibut catch aboard, and destination with approximate time of delivery. **In 2023**, vessels may not land any species of fish east of the Sekiu River.

For all commercial troll fisheries north of Cape Falcon:

Mandatory closed areas include: Salmon troll Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones, and beginning August 8, Grays Harbor Control Zone (C.5). Vessels must land and deliver their salmon within 24 hours of any closure of this fishery.

Vessels fishing or in possession of salmon <u>north</u> of Leadbetter Point must land and deliver all species of fish in a Washington port and must possess a Washington troll and/or salmon delivery license. <u>For delivery to Washington ports south of Leadbetter Point</u>, vessels must notify the Washington Department of Fish and Wildlife at 360-249-1215 prior to crossing the Leadbetter Point line with area fished, total Chinook, coho, and halibut catch aboard, and destination with approximate time of delivery. **During any single trip, only one side of the Leadbetter Point line may be fished** (C.11).

Vessels fishing or in possession of salmon while fishing <u>south</u> of Leadbetter Point must land and deliver all species of fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land all species of fish in Garibaldi, Oregon. All Chinook caught N. of Cape Falcon and being delivered by boat to Garibaldi must meet the minimum legal length of 28" for Chinook for South of Cape Falcon seasons unless the season in waters off Garibaldi have been closed for Chinook retention for more than 48 hours (C.1.). Under state law, vessels must report their catch on a state fish receiving ticket. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon to notify ODFW within one hour of delivery or prior to transport away from the port of landing by either calling 541-857-2546 or sending notification via e-mail to nfalcon.trollreport@odfw.oregon.gov. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8).

Vessels in possession of salmon <u>north of the Queets River</u> may not cross the Queets River line without first notifying WDFW at 360-249-1215 with area fished, total Chinook, coho and halibut catch aboard, and destination. Vessels in possession of salmon south of the Queets River may not cross the Queets River line without first notifying WDFW at 360-249-1215 with area fished, total Chinook, coho and halibut catch aboard, and destination. (C.11).

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – **Council adopted**. (Page 4 of 14)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Sacramento River fall Chinook spawning escapement of 199,881 hatchery and natural area adults.	1. Sacramento River fall Chinook spawning escapement of 199,662 hatchery and natural area adults.	1. Sacramento River fall Chinook spawning escapement of 197,756 hatchery and natural area adults.
2. Sacramento Index exploitation rate of 49.6%.	2. Sacramento Index exploitation rate of 49.6%.	2. Sacramento Index exploitation rate of 50.1%.
3. Klamath River recreational fishery allocation: 2,152 adult Klamath River fall Chinook.	3. Klamath River recreational fishery allocation: 2,125 adult Klamath River fall Chinook.	3. Klamath River recreational fishery allocation 2,546 adult Klamath River fall Chinook.
4. Klamath tribal allocation: 9,415 adult Klamath River fall Chinook.	4. Klamath tribal allocation: 9,375 adult Klamath River fall Chinook.	4. Klamath tribal allocation: 9,224 adult Klamath River fall Chinook.
5. CA/OR share of Klamath River fall Chinook commercial ocean harvest: 64.9% / 35.1%.	5. CA/OR share of Klamath River fall Chinook commercial ocean harvest: 63.6% / 36.4%.	5. CA/OR share of Klamath River fall Chinook commercial ocean harvest: 61.2% / 38.8%.
6. Overall commercial troll coho TAC: NA.	6. Overall commercial troll coho TAC: 10,000 coho marked with a healed adipose fin clip (marked),	6. Overall commercial troll coho TAC: NA.
7. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	7. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	7. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 5 of 14)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Cape Falcon to Heceta Bank Line • March 15-May 15; • May 16-31; • June 1-30; • July 15-31; • August 1-8; • September 1-October 31 (C.9.a). Open seven days per week . All salmon except coho. (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). All vessels fishing in the area must land their salmon in the State of Oregon. See gear restrictions and definitions (C.2, C.3). Beginning September 1, no more than 100 Chinook allowed per vessel per landing week (Thurs.-Wed.).	**Cape Falcon to Heceta Bank Line** • March 15-May 15; • May 16-31; • June 1-15; 21-27 • July 22-31; • September 1-October 31 (C.9.a). Same as Alternative 1 Beginning September 1, no more than 75 Chinook allowed per vessel per landing week (Thurs.-Wed.). • July 22 through the earlier of July 31, or Cape Falcon to Humbug Mt. quota of 10,000 marked coho. All salmon, all retained coho must be marked with a healed adipose fin clip (C.4, C.7). If the coho quota for the combined area from Cape Falcon to Humbug Mt. of 10,000 marked coho is met, then the season continues for all salmon except coho on the remaining open days. Salmon trollers may take and retain or possess on board a fishing vessel no more than 50 coho per vessel per open period. All coho retained, possessed on a vessel, and landed must not exceed a 1:1 ratio with Chinook salmon that are retained and landed at the same time. Coho minimum size limit of 16 inches total length, and Chinook minimum size limit of 28 inches total length (B, C.1). All vessels fishing in the area must land their salmon in the State of Oregon. See gear restrictions and definitions (C.2, C.3).	**Cape Falcon to Heceta Bank Line** • March 15-April 30; • May 23-31; • June 15-30; • July 6-10, 19-30; • August 2-11; • September 1-October 31 (C.9.a). Same as Alternative 1 Beginning September 1, no more than 75 Chinook allowed per vessel per landing week (Thurs.-Wed.).
In 2023, the season will open March 15 for all salmon except coho. Chinook minimum size limit of 28 inches total length. Gear restrictions same as in 2022. This opening could be modified following Council review at its March 2023 meeting.	In 2023, Same as Alternative 1	In 2023, Same as Alternative 1

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 6 of 14)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Heceta Bank Line – Humbug Mt. • May 1-15; • May 16-31; • August 1-8; • September 1-October 31 (C.9.a).	**Heceta Bank Line – Humbug Mt.** • May 1-15; • May 16-31; • June 1-15; 21-27 • July 22-31; • September 1-October 31 (C.9.a).	**Heceta Bank Line – Humbug Mt.** • May 1-14; • August 2-11; • September 1-October 31 (C.9.a).
Open seven days per week. All salmon except coho. (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). All vessels fishing in the area must land their salmon in the State of Oregon. See gear restrictions and definitions (C.2, C.3).	Same as Alternative 1	Same as Alternative 1
Beginning September 1, no more than 100 Chinook allowed per vessel per landing week (Thurs.-Wed.).	Beginning September 1, no more than 75 Chinook allowed per vessel per landing week (Thurs.-Wed.). • July 22 through the earlier of July 31, or Cape Falcon to Humbug Mt. quota of 10,000 marked coho. All salmon, all retained coho must be marked with a healed adipose fin clip (C.4, C.7). If the coho quota for the combined area from Cape Falcon to Humbug Mt. of 10,000 marked coho is met, then the season continues for all salmon except coho on the remaining open days. Salmon trollers may take and retain or possess on board a fishing vessel no more than 50 coho per vessel per open period. All coho retained, possessed on a vessel, and landed must not exceed a 1:1 ratio with Chinook salmon that are retained and landed at the same time. Coho minimum size limit of 16 inches total length, and Chinook minimum size limit of 28 inches total length (B, C.1). All vessels fishing in the area must land their salmon in the State of Oregon. See gear restrictions and definitions (C.2, C.3).	Beginning September 1, no more than 75 Chinook allowed per vessel per landing week (Thurs.-Wed.).
In 2023, the season will open March 15 for all salmon except coho. Chinook minimum size limit of 28 inches total length. Gear restrictions same as in 2022. This opening could be modified following Council review at its March 2023 meeting.	In 2023, Same as Alternative 1	In 2023, Same as Alternative 1

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – **Council adopted**. (Page 7 of 14)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Humbug Mt. to OR/CA Border (Oregon KMZ) • March 15-April 30; • June 1-30, or the earlier of 800 Chinook quota; • July 1-31, or the earlier of 400 Chinook quota; • August 1-28, or the earlier of 250 Chinook quota (C.9.a).	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • March 15-April 30; • June 1-30, or the earlier of 550 Chinook quota; • July 1-31, or the earlier of 200 Chinook quota (C.9.a).	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • March 15-May 14; • May 23-31; • June 1-30, or the earlier of 800 Chinook quota; • July 1-31, or the earlier of 500 Chinook quota (C.9.a).
Open seven days per week (Thurs.-Wed.). All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). Prior to June 1, all salmon caught in this area must be landed and delivered in the State of Oregon.	Same as Alternative 1	Same as Alternative 1
June 1-August 28 weekly landing and possession limit of 50 Chinook per vessel per week (Thurs.-Wed.).	June 1-July 31 weekly landing and possession limit of 20 Chinook per vessel per week (Thurs.-Wed.).	June 1-July 31 weekly landing and possession limit of 50 Chinook per vessel per week (Thurs.-Wed.).
Any remaining portion of Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period (C.8.b).	Same as Alternative 1	Same as Alternative 1
All vessels fishing in this area during June, July, and August must land and deliver all salmon within this area or into Port Orford within 24 hours of any closure of this fishery and prior to fishing outside of this area.	All vessels fishing in this area during June and July, must land and deliver all salmon within this area or into Port Orford within 24 hours of any closure of this fishery and prior to fishing outside of this area.	Same as Alternative 1
For all quota managed seasons, Oregon state regulations require fishers to notify ODFW within one hour of landing and prior to transport away from the port of landing by calling 541-857-2538 or sending notification via e-mail to kmzor.trollreport@odfw.oregon.gov, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.	Same as Alternative 1	Same as Alternative 1
In 2023, the season will open March 15 for all salmon except coho. Chinook minimum size limit of 28 inches total length. Gear restrictions same as in 2022. This opening could be modified following Council review at its March 2023 meeting.	In 2023, same as Alternative 1	In 2023, same as Alternative 1

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 8 of 14)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
OR/CA Border to Humboldt South Jetty (California KMZ) • Closed In 2023, the season will open May 1 through the earlier of May 31, or a 3,000 Chinook quota. Chinook minimum size limit of 27 inches total length. Landing and possession limit of 20 Chinook per vessel per day (C.8.f). Open five days per week (Fri.-Tue.). All salmon except coho (C.4, C.7). Any remaining portion of Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period (C.8.b). All fish caught in this area must be landed within the area, within 24 hours of any closure of the fishery (C.6), and prior to fishing outside the area (C.10). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed (C.5.e). See California State regulations for an additional closure adjacent to the Smith River. This opening could be modified following Council review at its March or April 2023 meetings.	**OR/CA Border to Humboldt South Jetty (California KMZ)** • Closed In 2023, same as Alternative 1	**OR/CA Border to Humboldt South Jetty (California KMZ)** • Closed In 2023, same as Alternative 1
Humboldt South Jetty to Latitude 40°10' N. • Closed.	**Humboldt South Jetty to Latitude 40°10' N.** • Closed.	**Humboldt South Jetty to Latitude 40°10' N.** • Closed.
Latitude 40°10' N. to Point Arena (Fort Bragg) • July 1-10; • August 1-10; • September 1-30 (C.9.b). Open seven days per week. All salmon except coho (C.4, C.7). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). Chinook minimum size limit of 27 inches total length (B, C.1). All salmon must be landed in California and north of Point Arena (C.6, C.11). In 2023, the season will open April 16 for all salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). Gear restrictions same as in 2022 (C.2, C.3). This opening could be modified following Council review at its March 2023 meeting.	**Latitude 40°10' N. to Point Arena (Fort Bragg)** • August 1-10; • September 1-30 (C.9.b). Same as Alternative 1 Same as Alternative 1 In 2023, same as Alternative 1	**Latitude 40°10' N. to Point Arena (Fort Bragg)** • Closed In 2023, same as Alternative 1
When the fishery is closed between the OR/CA border and Humbug Mountain and open to the south, vessels with fish on board caught in the open area off California may seek temporary mooring in Brookings, Oregon prior to landing in California only if such vessels first notify the Chetco River Coast Guard Station via VHF channel 22A between the hours of 0500 and 2200 and provide the vessel name, number of fish on board, and estimated time of arrival (C.6).		

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 9 of 14)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Pt. Arena to Pigeon Pt. (San Francisco) • July 1-10; • August 1-10; • September 1-30 (C.9.b).	**Pt. Arena to Pigeon Pt. (San Francisco)** • July 1-8; • August 1-12; • September 1-30 (C.9.b).	**Pt. Arena to Pigeon Pt. (San Francisco)** • July 1-11; • August 1-12; • September 1-30 (C.9.b).
Open seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length through August, then 26 inches thereafter (B, C.1). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).	Same as Alternative 1	Open seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length through August, then 26 inches thereafter (B, C.1). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).
All salmon must be landed in California (C.6). During September, all salmon must be landed south of Point Arena (C.6, C.11).	Same as Alternative 1	Same as Alternative 1
In 2023, the season will open May 1 for all salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). Gear restrictions same as in 2022 (C.2, C.3). This opening could be modified following Council review at its March or April 2023 meeting.	In 2023, Same as Alternative 1	In 2023, Same as Alternative 1
Point Reyes to Point San Pedro (Fall Area Target Zone) • October 3-7, 10-14.	**Point Reyes to Point San Pedro (Fall Area Target Zone)** • Same as Alternative 1	**Point Reyes to Point San Pedro (Fall Area Target Zone)** • Same as Alternative 1
Open five days per week (Mon.-Fri.). All salmon except coho (C.4, C.7). Chinook minimum size limit of 26 inches total length (B, C.1). All salmon caught in this area must be landed between Point Arena and Pigeon Point (C.6, C.11). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).	Same as Alternative 1	Same as Alternative 1

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 10 of 14)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Pigeon Point to U.S./Mexico Border (Monterey) • May 1-15; • June 1-12; • July 1-10; • August 1-10 (C.9.b). Open seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). All salmon must be landed in California (C.6). In 2023, the season will open May 1 for all salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). Gear restrictions same as in 2022 (C.2, C.3). This opening could be modified following Council review at its March or April 2023 meeting.	**Pigeon Point to U.S./Mexico Border (Monterey)** • May 1-9; • May 23-31; • June 1-15; • July 1-8 (C.9.b). Same as Alternative 1 In 2023, same as Alternative 1	**Pigeon Point to U.S./Mexico Border (Monterey)** • May 1-12; • May 20-27; • June 1-15; • July 1-11; • August 1-12; (C.9.b). Open seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). All salmon must be landed in California (C.6). In 2023, same as Alternative 1
California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the State (California Fish and Game Code §8226).		

B. MINIMUM SIZE (Inches) (See C.1)

Area (when open)	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
North of Cape Falcon	27	20.5	16	12	None
Cape Falcon to Humbug Mt.	28	21.5	16	12	None
Humbug Mt. to OR/CA Border	28	21.5	-	-	None
OR/CA Border to Humboldt South Jetty	-	-	-	-	-
Latitude 40°10' N. to Pt. Arena	27	20.5	-	-	27
Pt. Arena to Pigeon Pt. through August (Alt. 1 and Alt. 2)	27	20.5	-	-	27
Pt. Arena to Pigeon Pt. through August (Alt. 3)	28	21.5	-	-	28
Pt. Arena to Pigeon Pt. September-October	26	19.5	-	-	26
Pigeon Pt. to U.S./Mexico Border (Alt 1 and Alt. 2)	27	20.5	-	-	27
Pigeon Pt. to U.S./Mexico Border (Alt. 3)	28	21.5	-	-	28

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Compliance with Minimum Size or Other Special Restrictions: All salmon on board a vessel must meet the minimum size, landing/possession limit, or other special requirements for the area being fished and the area in which they are landed if the area is open or has been closed less than 48 hours for that species of salmon. Salmon may be landed in an area that has been closed for a species of salmon more than 48 hours only if they meet the minimum size, landing/possession limit, or other special requirements for the area in which they were caught. Salmon may not be filleted prior to landing.

Any person who is required to report a salmon landing by applicable state law must include on the state landing receipt for that landing both the number and weight of salmon landed by species. States may require fish landing/receiving tickets be kept on board the vessel for 90 days or more after landing to account for all previous salmon landings.

C.2. Gear Restrictions:

a. Salmon may be taken only by hook and line using single point, single shank, barbless hooks.
b. Cape Falcon, Oregon, to the OR/CA border: No more than 4 spreads are allowed per line.
c. OR/CA border to U.S./Mexico border: No more than 6 lines are allowed per vessel, and barbless circle hooks are required when fishing with bait by any means other than trolling.

C.3. Gear Definitions:

Trolling defined: Fishing from a boat or floating device that is making way by means of a source of power, other than drifting by means of the prevailing water current or weather conditions.

Troll fishing gear defined: One or more lines that drag hooks behind a moving fishing vessel engaged in trolling. In that portion of the fishery management area off Oregon and Washington, the line or lines must be affixed to the vessel and must not be intentionally disengaged from the vessel at any time during the fishing operation.

Spread defined: A single leader connected to an individual lure and/or bait.

Circle hook defined: A hook with a generally circular shape and a point which turns inward, pointing directly to the shank at a 90º angle.

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (Continued)

C.4. Vessel Operation in Closed Areas with Salmon on Board:

a. Except as provided under C.4.b below, it is unlawful for a vessel to have troll or recreational gear in the water while in any area closed to fishing for a certain species of salmon, while possessing that species of salmon; however, fishing for species other than salmon is not prohibited if the area is open for such species, and no salmon are in possession.

b. When Genetic Stock Identification (GSI) samples will be collected in an area closed to commercial salmon fishing, the scientific research permit holder shall notify NOAA OLE, USCG, CDFW, WDFW, ODFW, and OSP at least 24 hours prior to sampling and provide the following information: the vessel name, date, location and time collection activities will be done. Any vessel collecting GSI samples in a closed area shall not possess any salmon other than those from which GSI samples are being collected. Salmon caught for collection of GSI samples must be immediately released in good condition after collection of samples.

C.5. Control Zone Definitions:

a. *Cape Flattery Control Zone* - The area from Cape Flattery (48º23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48º10'00" N. lat.) and east of 125º05'00" W. long.

b. *Mandatory Yelloweye Rockfish Conservation Area* – The area in Washington Marine Catch Area 3 from 48°00.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°16.50' W. long. to 48°00.00' N. lat.; 125°16.50' W. long. and connecting back to 48°00.00' N. lat.; 125°14.00' W. long.

c. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 55'36" N. lat., 124°10'51" W. long.).

d. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat.,124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.

e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately 6 nautical miles north of the Klamath River mouth); on the west by 124°23'00" W. long. (approximately 12 nautical miles off shore); and on the south by 41°26'48" N. lat. (approximately 6 nautical miles south of the Klamath River mouth).

f. Waypoints for the 40 fathom regulatory line from Cape Falcon to Humbug Mt. (50 CFR 660.71 (k) (12)-(70), when in place.

45°46.00′ N. lat., 124°04.49′ W. long.;
45°44.34′ N. lat., 124°05.09′ W. long.;
45°40.64′ N. lat., 124°04.90′ W. long.;
45°33.00′ N. lat., 124°04.46′ W. long.;
45°32.27′ N. lat., 124°04.74′ W. long.;
45°29.26′ N. lat., 124°04.22′ W. long.;
45°20.25′ N. lat., 124°04.67′ W. long.;
45°19.99′ N. lat., 124°04.62′ W. long.;
45°17.50′ N. lat., 124°04.91′ W. long.;
45°11.29′ N. lat., 124°05.20′ W. long.;
45°05.80′ N. lat., 124°05.40′ W. long.;
45°05.08′ N. lat., 124°05.93′ W. long.;
45°03.83′ N. lat., 124°06.47′ W. long.;
45°01.70′ N. lat., 124°06.53′ W. long.;
44°58.75′ N. lat., 124°07.14′ W. long.;
44°51.28′ N. lat., 124°10.21′ W. long.;
44°49.49′ N. lat., 124°10.90′ W. long.;
44°44.96′ N. lat., 124°14.39′ W. long.;
44°43.44′ N. lat., 124°14.78′ W. long.;
44°42.26′ N. lat., 124°13.81′ W. long.;
44°41.68′ N. lat., 124°15.38′ W. long.;
44°34.87′ N. lat., 124°15.80′ W. long.;
44°33.74′ N. lat., 124°14.44′ W. long.;
44°27.66′ N. lat., 124°16.99′ W. long.
44°19.13′ N. lat., 124°19.22′ W. long.;
44°15.35′ N. lat., 124°17.38′ W. long.;
44°14.38′ N. lat., 124°17.78′ W. long.;
44°12.80′ N. lat., 124°17.18′ W. long.;
44°09.23′ N. lat., 124°15.96′ W. long.;
44°08.38′ N. lat., 124°16.79′ W. long.;
44°08.30′ N. lat., 124°16.75′ W. long.;
44°01.18′ N. lat., 124°15.42′ W. long.;
43°51.61′ N. lat., 124°14.68′ W. long.;
43°42.66′ N. lat., 124°15.46′ W. long.;
43°40.49′ N. lat., 124°15.74′ W. long.;
43°38.77′ N. lat., 124°15.64′ W. long.;
43°34.52′ N. lat., 124°16.73′ W. long.;
43°28.82′ N. lat., 124°19.52′ W. long.;
43°23.91′ N. lat., 124°24.28′ W. long.;
43°20.83′ N. lat., 124°26.63′ W. long.;
43°17.96′ N. lat., 124°28.81′ W. long.;
43°16.75′ N. lat., 124°28.42′ W. long.;
43°13.97′ N. lat., 124°31.99′ W. long.;
43°13.72′ N. lat., 124°33.25′ W. long.;
43°12.26′ N. lat., 124°34.16′ W. long.;
43°10.96′ N. lat., 124°32.33′ W. long.;
43°05.65′ N. lat., 124°31.52′ W. long.;
42°59.66′ N. lat., 124°32.58′ W. long.;
42°54.97′ N. lat., 124°36.99′ W. long.;
42°53.81′ N. lat., 124°38.57′ W. long.;
42°50.00′ N. lat., 124°39.68′ W. long.;
42°49.13′ N. lat., 124°39.70′ W. long.;
42°46.47′ N. lat., 124°38.89′ W. long.;
42°45.74′ N. lat., 124°38.86′ W. long.;
42°44.79′ N. lat., 124°37.96′ W. long.;
42°45.01′ N. lat., 124°36.39′ W. long.;
42°44.14′ N. lat., 124°35.17′ W. long.;
42°42.14′ N. lat., 124°32.82′ W. long.;
42°40.50′ N. lat., 124°31.98′ W. long.

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

C.6. Notification When Unsafe Conditions Prevent Compliance with Regulations: If prevented by unsafe weather conditions or mechanical problems from meeting special management area landing restrictions, vessels must notify the U.S. Coast Guard and receive acknowledgment of such notification prior to leaving the area. This notification shall include the name of the vessel, port where delivery will be made, approximate number of salmon (by species) on board, the estimated time of arrival, and the specific reason the vessel is not able to meet special management area landing restrictions.

In addition to contacting the U.S. Coast Guard, vessels fishing south of the Oregon/California border must notify CDFW within one hour of leaving the management area by calling 800-889-8346 and providing the same information as reported to the U.S. Coast Guard. All salmon must be offloaded within 24 hours of reaching port.

C.7. Incidental Halibut Harvest: License applications for incidental harvest for halibut during commercial salmon fishing must be obtained from IPHC.

During the 2022 salmon troll season, incidental harvest is authorized only during April, May, and June, and after June 30 if quota remains and if announced on the NMFS hotline (phone: 800-662-9825 or 206-526-6667). WDFW, ODFW, and CDFW will monitor landings. If the landings are projected to exceed the IPHC's preseason allocation or the total Area 2A non-Indian commercial halibut allocation, NMFS will take inseason action to prohibit retention of halibut in the non-Indian salmon troll fishery.

Beginning May 16, 2022 through the end of the 2022 salmon troll fishery, and beginning April 1, 2023, until modified through inseason action or superseded by the 2023 management measures the Council adopted the following options for public review:

Option I - May 16, 2022 until the end of the 2022 salmon troll season, and April 1-May 15, 2023 , license holders may land or possess no more than one Pacific halibut per two Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 35 halibut may be possessed or landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).
Option II - May 16, 2022 until the end of the 2022 salmon troll season, and April 1-May 15, 2023 , license holders may land or possess no more than one Pacific halibut per two Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 30 halibut may be possessed or landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).
Option III - May 16, 2022 until the end of the 2022 salmon troll season, and April 1-May 15, 2023 , license holders may land or possess no more than one Pacific halibut per two Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 25 halibut may be possessed or landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).

Incidental Pacific halibut catch regulations in the commercial salmon troll fishery adopted for 2022, prior to any 2022 inseason action, will be in effect when incidental Pacific halibut retention opens on April 1, 2023 unless otherwise modified by inseason action at the March 2023 Council meeting.

a. "C-shaped" yelloweye rockfish conservation area is an area to be voluntarily avoided for salmon trolling. NMFS and the Council request salmon trollers voluntarily avoid this area in order to protect yelloweye rockfish. The area is defined in the Pacific Council Halibut Catch Sharing Plan in the North Coast subarea (Washington marine area 3), with the following coordinates in the order listed:

48°18' N. lat.; 125°18' W. long.;
48°18' N. lat.; 124°59' W. long.;
48°11' N. lat.; 124°59' W. long.;
48°11' N. lat.; 125°11' W. long.;
48°04' N. lat.; 125°11' W. long.;
48°04' N. lat.; 124°59' W. long.;
48°00' N. lat.; 124°59' W. long.;
48°00' N. lat.; 125°18' W. long.;
and connecting back to 48°18' N. lat.; 125°18' W. long.

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

C.8. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Chinook remaining from the May through June non-Indian commercial troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline if the transfer would not result in exceeding preseason impact expectations on any stocks.
b. Chinook remaining from May, June, and/or July non-Indian commercial troll quotas in the Oregon or California KMZ may be transferred to the Chinook quota for the next open period if the transfer would not result in exceeding preseason impact expectations on any stocks.
c. NMFS may transfer salmon between the recreational and commercial fisheries north of Cape Falcon if there is agreement among the areas' representatives on the Salmon Advisory Subpanel (SAS), and if the transfer would not result in exceeding preseason impact expectations on any stocks.
d. At the March 2022 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2022.
e. If retention of unmarked coho (adipose fin intact) is permitted by inseason action, the allowable coho quota will be adjusted to ensure preseason projected impacts on all stocks is not exceeded.
f. Landing limits may be modified inseason to sustain season length and keep harvest within overall quotas.
g. NMFS may close fisheries through inseason action on the recommendation of the affected state(s) of Washington, Oregon or California where the recommendation to close is informed by an evaluation of actions or orders promulgated or issued by jurisdictions in these areas to address public health concerns related to COVID-19 concluding that these actions would likely make access to the fishery impracticable (e.g., restrictions on activities or closure of harbors, launch ramps and other forms of access) or would make information essential to manage and implement the fishery unavailable. NMFS should open fisheries closed on this basis through inseason action upon notice from the affected State(s) that said actions or orders making access to the fishery impracticable have been lifted and information essential to manage and implement the fishery would be available.

C.9. State Waters Fisheries: Consistent with Council management objectives:
a. The State of Oregon may establish additional late-season fisheries in state waters.
b. The State of California may establish limited fisheries in selected state waters.
c. Check state regulations for details

C.10. For the purposes of California Fish and Game Code, Section 8232.5, the definition of the Klamath Management Zone (KMZ) for the ocean salmon season shall be that area from Humbug Mountain, Oregon, to Latitude 40°10' N..

C.11. Latitudes for geographical reference of major landmarks along the west coast. Source: 2018 West Coast federal salmon regulations.
https://www.govinfo.gov/content/pkg/FR-2018-05-01/pdf/2018-09164.pdf.

Cape Flattery, WA	48°23′00″ N lat.	Humboldt South Jetty, CA	40°45′53″ N lat.
Cape Alava, WA	48°10′00″ N lat.	Helliwell line	40°10′00″ N lat.
Queets River, WA	47°31′42″ N lat.	Horse Mountain, CA	40°05′00″ N lat.
Leadbetter Point, WA	46°38′10″ N lat.	Point Arena, CA	38°57′30″ N lat.
Cape Falcon, OR	45°46′00″ N lat.	Point Reyes, CA	37°59′44″ N lat.
Florence South Jetty, OR	44°00′54″ N lat.	Point San Pedro, CA	37°35′40″ N lat.
South end Heceta Bank line, OR	44°00′54″ N lat.	Pigeon Point, CA	37°11′00″ N lat.
Humbug Mountain, OR	43°58′00″ N lat.	Point Sur, CA	36°18′00″ N lat.
Oregon-California border	42°00′00″ N lat.	Point Conception, CA	34°27′00″ N lat.

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries - Council adopted. **(**Page 1 of 10)

A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 65,000 Chinook and 210,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 32,500 Chinook and 176,400 marked coho; all retained coho must be marked. 3. Various daily limits and species combinations of one and two salmon will be considered. Including one fish, two fish only, one of which may be a Chinook, and two fish only one of which may be a coho. 4. Trade: 5. No Area 4B add-on fishery. 6. Buoy 10 fishery opens August 1 with an expected landed catch of 45,000 marked coho in August and September. 7. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 60,000 Chinook and 185,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 30,000 Chinook and 155,400 marked coho; all retained coho must be marked. 3.Same as Alternative 1. 4. Trade: 5. Same as Alternative 1. 6. Buoy 10 fishery opens August 1 with an expected landed catch of 55,000 marked coho in August and September. 7. Same as Alternative I.	1. Overall non-Indian TAC: 53,000 Chinook and 160,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 26,500 Chinook and 134,400 marked coho; all retained coho must be marked. 3. Same as Alternative 1. 4. Trade: 5. Same as Alternative 1. 6. Buoy 10 fishery opens August 1 with an expected landed catch of 65,000 marked coho in August and September. 7. Same as Alternative I.
U.S./Canada Border to Cape Alava (Neah Bay) • June 18 through earlier of September 30, or 18,350 marked coho subarea quota, with a subarea guideline of 7,350 Chinook (C.5). Open seven days per week. All salmon, except no chum beginning August 1; two salmon per day. All coho must be marked with a healed adipose fin clip (C.1). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay**) • June 25 through earlier of September 30, or 16,160 marked coho subarea quota, with a subarea guideline of 6,790 Chinook (C.5). Same as Alternative 1 Same as Alternative 1	**U.S./Canada Border to Cape Alava (Neah Bay**) • June 18 through earlier of September 18, or 13,980 marked coho subarea quota, with a subarea guideline of 6,000 Chinook (C.5). Same as Alternative 1 Same as Alternative 1

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council Adopted. (Page 2 of 10)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Cape Alava to Queets River (La Push Subarea) • June 18 through earlier of September 30, or 4,590 marked coho subarea quota, with a subarea guideline of 1,225 Chinook (C.5). Open seven days per week. All salmon, except no chum beginning August 1; two salmon per day. All coho must be marked with a healed adipose fin clip (C.1). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5). • October 1 through earlier of October 9, or 125 Chinook quota (C.5) in the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. Open seven days per week. Chinook only, 1 chinook per day 1 (C.1).	**Cape Alava to Queets River (La Push Subarea)** • June 25 through earlier of September 30, or 4,040 marked coho subarea quota, with a subarea guideline of 1,240 Chinook (C.5). Same as Alternative 1 Same as Alternative 1	**Cape Alava to Queets River (La Push Subarea)** • June 18 through earlier of September 18, or 3,490 marked coho subarea quota, with a subarea guideline of 1,100 Chinook (C.5). Same as Alternative 1 Same as Alternative 1
Queets River to Leadbetter Point (Westport Subarea) • June 18 through earlier of September 30, or 65,260 marked coho subarea quota, with a subarea guideline of 14,530 Chinook (C.5). Open seven days per week. All salmon; two salmon per day, no more than one of which may be a Chinook. All coho must be marked with a healed adipose fin clip (C.1). Chinook minimum size limit of 22 inches total length (B). See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 8 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • June 25 through earlier of September 30, or 57,500 marked coho subarea quota, with a subarea guideline of 13,410 Chinook (C.5). Same as Alternative 1 Same as Alternative 1	**Queets River to Leadbetter Point (Westport Subarea)** • June 26 through earlier of September 18, or 49,730 marked coho subarea quota, with a subarea guideline of 11,840 Chinook (C.5). Open five days per week (Sun.–Thurs.). All salmon; two salmon per day, no more than one of which may be a Chinook. All coho must be marked with a healed adipose fin clip (C.1). Chinook minimum size limit of 22 inches total length (B). Same as Alternative 1

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council Adopted. (Page 3 of 10)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Leadbetter Point to Cape Falcon (Columbia River Subarea) • June 18 through earlier of September 30, or 88,200 marked coho subarea quota, with a subarea guideline of 9,270 Chinook (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • June 25 through earlier of September 30, or 77,700 marked coho subarea quota, with a subarea guideline of 8,560 Chinook (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • June 26 through earlier of September 18, or 67,200 marked coho subarea quota, with a subarea guideline of 7,560 Chinook (C.5).
Open seven days per week. All salmon; two salmon per day, no more than one of which may be a Chinook. All coho must be marked with a healed adipose fin clip (C.1). Chinook minimum size limit of 22 inches total length (B).	Same as Alternative 1	Same as Alternative 1
Columbia Control Zone closed (C.4.c). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	Same as Alternative 1	Same as Alternative 1

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council Adopted. (Page 4 of 10)

A. SEASON ALTERNATIVE DESCRIPTIONS

South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
8. Sacramento River fall Chinook spawning escapement of 199,881 hatchery and natural area adults. 9. Sacramento Index exploitation rate of 49.6%. 10. Klamath River recreational fishery allocation: 2,152 adult Klamath River fall Chinook. 11. Klamath tribal allocation: 9,415 adult Klamath River fall Chinook. 5. Overall recreational coho TAC: 100,000 coho marked with a healed adipose fin clip (marked), and 20,000 coho in the non-mark-selective coho fishery. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the CFGC.	8. Sacramento River fall Chinook spawning escapement of 199,662 hatchery and natural area adults. 9. Sacramento Index exploitation rate of 49.6%. 10. Klamath River recreational fishery allocation: 2,125 adult Klamath River fall Chinook. 11. Klamath tribal allocation: 9,375 adult Klamath River fall Chinook. 5. Overall recreational coho TAC: 97,000 coho marked with a healed adipose fin clip (marked), and 18,000 coho in the non-mark-selective coho fishery. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the CFGC.	8. Sacramento River fall Chinook spawning escapement of 197,756 hatchery and natural area adults. 9. Sacramento Index exploitation rate of 50.1%. 10. Klamath River recreational fishery allocation 2,546 adult Klamath River fall Chinook. 11. Klamath tribal allocation: 9,224 adult Klamath River fall Chinook. 5. Overall recreational coho TAC: 95,000 coho marked with a healed adipose fin clip (marked), and 17,000 coho in the non-mark-selective coho fishery. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the CFGC.
Cape Falcon to Humbug Mt. • March 15-May 15; • May 16-October 31 (C.6). Open seven days per week. All salmon except coho, except as provided below during the all-salmon mark-selective coho fishery and the non-mark-selective coho fishery (C.5), two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2023, the season will open March 15 for all salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2022 (C.2, C.3). This opening could be modified following Council review at its March 2023 meeting.	**Cape Falcon to Humbug Mt.** • Same as Alternative 1 Same as Alternative 1 In 2023, same as Alternative 1	**Cape Falcon to Humbug Mt.** • March 15-May 15; • May 16-July 31; • September 1-October 31 (C.6) Same as Alternative 1 In 2023, same as Alternative 1
Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).		

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council Adopted. (Page 5 of 10)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Cape Falcon to OR/CA Border. All-salmon mark-selective coho fishery: • June 18 through the earlier of August 21, or 100,000 marked coho quota (C.6). Open seven days per week. All salmon, two salmon per day. All retained coho must be marked with a healed adipose fin clip (C.1). See minimum size limits (B). See gear restrictions and definitions (C.2, C.3). Any remainder of the mark-selective coho quota may be transferred inseason on an impact neutral basis to the non-selective coho quota from Cape Falcon to Humbug Mountain (C.5).	**Cape Falcon to OR/CA Border.** All-salmon mark-selective coho fishery: • June 25 through the earlier of August 21, or 97,000 marked coho quota (C.6). Same as Alternative 1 Same as Alternative 1	**Cape Falcon to Humbug Mt.** All-salmon mark-selective coho fishery: • June 25 through the earlier of August 31, or 95,000 marked coho quota (C.6). Open seven days per week. All salmon through July 31, then all salmon, EXCEPT closed to Chinook retention in August. Two salmon per day. All retained coho must be marked with a healed adipose fin clip (C.1). See minimum size limits (B). See gear restrictions and definitions (C.2, C.3). Same as Alternative 1
Cape Falcon to Humbug Mt. Non-mark-selective coho fishery: • September 3 through the earlier of September 30, or 20,000 non-mark-selective coho quota (C.6). Open days may be modified inseason. Open seven days per week. All salmon, two salmon per day (C.1). See minimum size limits (B). See gear restrictions and definitions (C.2, C.3).	**Cape Falcon to Humbug Mt.** Non-mark-selective coho fishery: • September 6 through the earlier of September 30, or 18,000 non-mark-selective coho quota (C.6). Open days may be modified inseason. Same as Alternative 1	**Cape Falcon to Humbug Mt.** Non-mark-selective coho fishery: • September 10 through the earlier of September 30, or 17,000 non-mark-selective coho quota (C.6). Open days may be modified inseason. Same as Alternative 1
Humbug Mt. to OR/CA Border (Oregon KMZ) • May 21-June 27 (C.6). Open seven days per week. All salmon except coho, except as listed above for the mark-selective coho fishery From Cape Falcon to the OR/CA Border (June 18-August 21). Two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • July 1-August 19 (C.6). Open seven days per week. All salmon except coho, except as listed above for the mark-selective coho fishery from Cape Falcon to the OR/CA Border (June 25-August 21). Two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • June 25-July 31 (C.6). Open seven days per week. All salmon except coho. Two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).
Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all-depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).		

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council Adopted. (Page 6 of 10)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
OR/CA Border to latitude 40°10' N. (California KMZ) • May 1-May 15; • May 16-31; • August 1-September 5 (C.6). Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Eel, and Klamath Rivers. In 2023, season opens May 1 for all salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2022 (C.2, C.3). This opening could be modified following Council review at its March or April 2023 meeting.	**OR/CA Border to latitude 40°10' N. (California KMZ)** • May 1-15; • May 16-31; • July 1- 4; • August 1-31 (C.6). Same as Alternative 1 Same as Alternative 1 In 2023, same as Alternative 1	**OR/CA Border to latitude 40°10' N. (California KMZ)** • July 1-24 (C.6). Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Same as Alternative 1 In 2023, same as Alternative 1
Latitude 40°10' N. to Point Arena (Fort Bragg) • May 1-15; • May 16-31; • July 1-November 13 (C.6). Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2023, season opens April 1 for all salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2022 (C.2, C.3). This opening could be modified following Council review at its March 2023 meeting.	**Latitude 40°10' N. to Point Arena (Fort Bragg)** • May 1-15; • May 16-July 4; • July 22-October 31 (C.6). Same as Alternative 1 In 2023, same as Alternative 1	**Latitude 40°10' N. to Point Arena (Fort Bragg)** • May 1-September 30 (C.6). Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2023, same as Alternative 1

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council Adopted. (Page 7 of 10)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Point Arena to Pigeon Point (San Francisco) • April 2-May 15 (C.6).	**Point Arena to Pigeon Point (San Francisco)** • April 2-May 15 (C.6).	**Point Arena to Pigeon Point (San Francisco)** • April 2-30; • June 20-September 30 (C.6).
Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	Same as Alternative 1	Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).
• May 16-31; • July 1-November 13 (C.6).	• July 1-October 31 (C.6).	
Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3).	Same as Alternative 1	
In 2023, season opens April 1 for all salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2022 (C.2, C.3). This opening could be modified following Council review at its March 2023 meeting.	In 2023, same as Alternative 1	In 2023, same as Alternative 1

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council Adopted. (Page 8 of 10)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Pigeon Point to U.S./Mexico Border (Monterey) • April 2-May 15 (C.6). Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). • May 16-October 2 (C.6). Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit 20 inches total length. See gear restrictions and definitions (C.2, C.3). In 2023, season opens April 1 for all salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2022 (C.2, C.3). This opening could be modified following Council review at its March 2023 meeting.	**Pigeon Point to U.S./Mexico Border (Monterey)** • April 2-May 15; • May 16-October 2 (C.6). Open seven days per week. All salmon except coho, two salmon per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2023, same as Alternative 1	**Pigeon Point to U.S./Mexico Border (Monterey)** • April 2-May 15 (C.6). Same as Alternative 1 • May 16-October 2 (C.6). Same as Alternative 1 In 2023, same as Alternative 1.

California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the State (California Code of Regulations Title 14 Section 1.73).

TABLE 2. 2022 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council Adopted. (Page 9 of 10)

B. MINIMUM SIZE (Inches) (See C.1)

Area (when open)	Chinook	Coho	Pink
North of Cape Falcon (Westport and Col R)	22	16	None
North of Cape Falcon (Neah Bay and La Push)	24	16	None
Cape Falcon to Humbug Mt.	24	16	None
Humbug Mt. to OR/CA Border	24	16	None
OR/CA Border to Pt. Arena . (Alt 1 and 2)	20	-	20
OR/CA Border to Pt. Arena . (Alt 3)	24	-	24
Pt. Arena to Pigeon Pt. (Alt. 3)	24	-	24
Pt. Arena to Pigeon Pt. through May 15 (Alt. 1 and Alt. 2)	24	-	24
Pt. Arena to Pigeon Pt. beginning May 16 (Alt. 1 and Alt. 2)	20	-	20
Pigeon Pt. to U.S./Mexico Border (Alt 2, and through May 15 in Alt 1 and Alt 3)	24	-	24
Pigeon Pt. to U.S./Mexico Border (beginning May 16 in Alt 1 and Alt 3)	20		20

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Compliance with Minimum Size and Other Special Restrictions: All salmon on board a vessel must meet the minimum size or other special requirements for the area being fished and the area in which they are landed if that area is open. Salmon may be landed in an area that is closed only if they meet the minimum size or other special requirements for the area in which they were caught. Salmon may not be filleted prior to landing.

Ocean Boat Limits: Off the coast of Washington, Oregon, and California, each fisher aboard a vessel may continue to use angling gear until the combined daily limits of Chinook and coho salmon for all licensed and juvenile anglers aboard have been attained (additional state restrictions may apply).

C.2. Gear Restrictions: Salmon may be taken only by hook and line using barbless hooks. All persons fishing for salmon, and all persons fishing from a boat with salmon on board must meet the gear restrictions listed below for specific areas or seasons.

a. *U.S./Canada Border to Pt. Conception, California*: No more than one rod may be used per angler; and no more than two single point, single shank, barbless hooks are required for all fishing gear.

b. *Latitude 40°10' N., California, to Pt. Conception, California:* Single point, single shank, barbless circle hooks (see gear definitions below) are required when fishing with bait by any means other than trolling, and no more than two such hooks shall be used. When angling with two hooks, the distance between the hooks must not exceed five inches when measured from the top of the eye of the top hook to the inner base of the curve of the lower hook, and both hooks must be permanently tied in place (hard tied). Circle hooks are not required when artificial lures are used without bait.

C.3. Gear Definitions:

a. *Recreational fishing gear defined*: Off Oregon and Washington, angling tackle consists of a single line that must be attached to a rod and reel held by hand or closely attended; the rod and reel must be held by hand while playing a hooked fish. No person may use more than one rod and line while fishing off Oregon or Washington. Off California, the line must be attached to a rod and reel held by hand or closely attended; weights directly attached to a line may not exceed four pounds (1.8 kg). While fishing off California north of Pt. Conception, no person fishing for salmon, and no person fishing from a boat with salmon on board, may use more than one rod and line. Fishing includes any activity which can reasonably be expected to result in the catching, taking, or harvesting of fish.

b. *Trolling defined*: Angling from a boat or floating device that is making way by means of a source of power, other than drifting by means of the prevailing water current or weather conditions.

c. Circle hook defined: A hook with a generally circular shape and a point which turns inward, pointing directly to the shank at a 90° angle.

C.4. Control Zone Definitions:

a. *The Bonilla-Tatoosh Line*: A line running from the western end of Cape Flattery to Tatoosh Island Lighthouse (48°23'30" N. lat., 124°44'12" W. long.) to the buoy adjacent to Duntze Rock (48°24'37" N. lat., 124°44'37" W. long.), then in a straight line to Bonilla Pt. (48°35'39" N. lat., 124°42'58" W. long.) on Vancouver Island, British Columbia.

b. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 55'36" N. lat., 124°10'51" W. long.).

c. *Columbia Control Zone*: An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat., 124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long. and then along the north jetty to the point of intersection with the Buoy #10 line; and on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.

d. *Stonewall Bank Yelloweye Rockfish Conservation Area*: The area defined by the following coordinates in the order listed:
   44°37.46' N. lat.; 124°24.92' W. long.
   44°37.46' N. lat.; 124°23.63' W. long.
   44°28.71' N. lat.; 124°21.80' W. long.
   44°28.71' N. lat.; 124°24.10' W. long.
   44°31.42' N. lat.; 124°25.47' W. long.
   and connecting back to 44°37.46' N. lat.; 124°24.92' W. long.

e. *Klamath Control Zone*: The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately 6 nautical miles north of the Klamath River mouth); on the west by 124°23'00" W. long. (approximately 12 nautical miles off shore); and, on the south by 41°26'48" N. lat. (approximately 6 nautical miles south of the Klamath River mouth).

C.5. Inseason Management: Regulatory modifications may become necessary inseason to meet preseason management objectives such as quotas, harvest guidelines, and season duration. In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Actions could include modifications to bag limits, or days open to fishing, and extensions or reductions in areas open to fishing.

b. Coho may be transferred inseason among recreational subareas north of Cape Falcon to help meet the recreational season duration objectives (for each subarea) after conferring with representatives of the affected ports and the Council's SAS recreational representatives north of Cape Falcon, and if the transfer would not result in exceeding preseason impact expectations on any stocks.

c. Chinook and coho may be transferred between the recreational and commercial fisheries north of Cape Falcon if there is agreement among the representatives of the SAS, and if the transfer would not result in exceeding preseason impact expectations on any stocks.

d. Fishery managers may consider inseason action modifying regulations restricting retention of unmarked (adipose fin intact) coho. To remain consistent with preseason expectations, any inseason action shall consider, if significant, the difference between observed and preseason forecasted (adipose-clipped) mark rates. Such a consideration may also include a change in bag limit of two salmon, no more than one of which may be a coho.

e. Marked coho remaining from the Cape Falcon to OR/CA Border. recreational mark-selective coho quota may be transferred inseason to the Cape Falcon to Humbug Mt. non-mark-selective recreational fishery if the transfer would not result in exceeding preseason impact expectations on any stocks.

C.6. Additional Seasons in State Territorial Waters: Consistent with Council management objectives, the States of Washington, Oregon, and California may establish limited seasons in state waters. Check state regulations for details

TABLE 3. 2022 Treaty Indian troll management Alternatives for ocean salmon fisheries – Council adopted. (Page 1 of 2)

A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall Treaty-Indian TAC: 50,000 Chinook and 62,000 coho. 2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries. 3. In 2023, the season will open May 1, consistent with all preseason regulations in place for Treaty Indian Troll fisheries during May 16-June 30, 2022. All catch in May 2023 applies against the 2023 Treaty Indian Troll fisheries quota. This opening could be modified following Council review at its March and/or April 2023 meetings.	1. Overall Treaty-Indian TAC: 40,000 Chinook and 52,000 coho. 2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries. 3. In 2023, the season will open May 1, consistent with all preseason regulations in place for Treaty Indian Troll fisheries during May 16-June 30, 2022. All catch in May 2023 applies against the 2023 Treaty Indian Troll fisheries quota. This opening could be modified following Council review at its March and/or April 2023 meetings.	. Overall Treaty-Indian TAC: 30,000 Chinook and 42,000 coho. 2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries. 3. In 2023, the season will open May 1, consistent with all preseason regulations in place for Treaty Indian Troll fisheries during May 16-June 30, 2022. All catch in May 2023 applies against the 2023 Treaty Indian Troll fisheries quota. This opening could be modified following Council review at its March and/or April 2023 meetings.
• May 1 through the earlier of June 30 or 25,000 Chinook quota. All salmon may be retained except coho. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season (C.5). See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 25,000 Chinook quota, or 62,00 coho quota. All Salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 20,000 Chinook quota. All salmon may be retained except coho. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season (C.5). See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 20,000 Chinook quota or 52,000 coho quota All salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 15,000 Chinook quota. All salmon may be retained except coho. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season (C.5). See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 15,000 Chinook quota or 42,000 coho quota All salmon. See size limit (B) and other restrictions (C).

B. MINIMUM LENGTH (TOTAL INCHES)

	Chinook		Coho		
Area (when open)	Total Length	Head-off	Total Length	Head-off	Pink
North of Cape Falcon	24.0 (61.0 cm)	18.0 (45.7 cm)	16.0 (40.6 cm)	12.0 (30.5 cm)	None

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Tribe and Area Boundaries. All boundaries may be changed to include such other areas as may hereafter be authorized by a Federal court for that tribe's treaty fishery.

S'KLALLAM - Washington State Statistical Area 4B (defined to include those waters of Puget Sound easterly of a line projected from the Bonilla Point light on Vancouver Island to the Tatoosh Island light, thence to the most westerly point on Cape Flattery and westerly of a line projected true north from the fishing boundary marker at the mouth of the Sekiu River [WAC 220-301-030]).

MAKAH - Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.

QUILEUTE - A polygon commencing at Cape Alava, located at latitude 48°10'00" north, longitude 124°43'56.9" west; then proceeding west approximately forty nautical miles at that latitude to a northwestern point located at latitude 48°10'00" north, longitude 125°44'00" west; then proceeding in a southeasterly direction mirroring the coastline at a distance no farther than forty nautical miles from the mainland Pacific coast shoreline at any line of latitude, to a southwestern point at latitude 47°31'42" north, longitude 125°20'26" west; then proceeding east along that line of latitude to the Pacific coast shoreline at latitude 47°31'42" north, longitude 124°21'9.0" west.

HOH - That portion of the FMA between 47°54'18" N. lat. (Quillayute River) and 47°21'00" N. lat. (Quinault River) and east of 125°44'00" W. long.

QUINAULT - A polygon commencing at the Pacific coast shoreline near Destruction Island, located at latitude 47°40'06" north, longitude 124°23'51.362" west; then proceeding west approximately thirty nautical miles at that latitude to a northwestern point located at latitude 47°40'06" north, longitude 125°08'30" west; then proceeding in a southeasterly direction mirroring the coastline no farther than thirty nautical miles from the mainland Pacific coast shoreline at any line of latitude, to a southwestern point at latitude 46°53'18" north, longitude 124°53'53" west; then proceeding east along that line of latitude to the pacific coast shoreline at latitude 46°53'18" north, longitude 124°7'36.6" west.

C.2. Gear restrictions

a. Single point, single shank, barbless hooks are required in all fisheries.

b. No more than eight fixed lines per boat.

c. No more than four hand-held lines per person in the Makah area fishery (Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.)

C.3. Quotas

a. The quotas include troll catches by the S'Klallam and Makah Tribes in Washington State Statistical Area 4B from May 1 through September 15.

b. The Quileute Tribe may continue a ceremonial and subsistence fishery during the time frame of October 1 through October 15 in the same manner as in 2004-2015. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2022 season (estimated harvest during the October ceremonial and subsistence fishery: 20 Chinook; 40 coho).

C.4. Area Closures

a. The area within a six nautical mile radius of the mouths of the Queets River (47°31'42" N. lat.) and the Hoh River (47°45'12" N. lat.) will be closed to commercial fishing.

b. A closure within two nautical miles of the mouth of the Quinault River (47°21'00" N. lat.) may be enacted by the Quinault Nation and/or the State of Washington and will not adversely affect the Secretary of Commerce's management regime.

C.5. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Chinook remaining from the May through June treaty-Indian ocean troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline on a fishery impact equivalent basis.

TABLE 4. 2022 Chinook and coho harvest quotas and guidelines (*) for ocean salmon fishery management Alternatives - Council adopted.

Fishery or Quota Designation	Chinook for Alternative I	Chinook for Alternative II	Chinook for Alternative III	Coho for Alternative I	Coho for Alternative II	Coho for Alternative III
NORTH OF CAPE FALCON						
TREATY INDIAN OCEAN TROLL[a/]						
U.S./Canada Border to Cape Falcon (All Except Coho)	25,000	20,000	15,000	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	25,000	20,000	15,000	62,000	52,000	42,000
Subtotal Treaty Indian Ocean Troll	50,000	40,000	30,000	62,000	52,000	42,000
NON-INDIAN COMMERCIAL TROLL[b/]						
U.S./Canada Border to Cape Falcon (All Except Coho)	21,500	20,000	13,250	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	11,000	10,000	13,250	33,600	29,600	25,600
Subtotal Non-Indian Commercial Troll	32,500	30,000	26,500	33,600	29,600	25,600
RECREATIONAL						
U.S./Canada Border to Cape Alava[b/]	7,350 *	6,790 *	6,000 *	18,350	16,160	13,980
Cape Alava to Queets River[b/]	1,350 *	1,240 *	1,100 *	4,590	4,040	3,490
Queets River to Leadbetter Pt.[b/]	14,530 *	13,410 *	11,840 *	65,260	57,500	49,730
Leadbetter Pt. to Cape Falcon[b/c/]	9,270 *	8,560 *	7,560 *	88,200	77,700	67,200
Subtotal Recreational	32,500	30,000	26,500	176,400	155,400	134,400
TOTAL NORTH OF CAPE FALCON	115,000	100,000	83,000	272,000	237,000	202,000
SOUTH OF CAPE FALCON						
COMMERCIAL TROLL[a/]						
Cape Falcon to Humbug Mt.	-	-	-	-	10,000	-
Humbug Mt. to OR/CA Border	1,450	750	1,300	-	-	-
OR/CA Border to Humboldt South Jetty	-	-	-	-	-	-
Subtotal Commercial Troll	1,450	750	1,300	-	10,000	-
RECREATIONAL						
Cape Falcon to OR/CA Border	-	-	-	120,000 [d/]	115,000 [e/]	112,000 [f/]
TOTAL SOUTH OF CAPE FALCON	1,450	750	1,300	120,000	125,000	112,000

a/ Quotas are non-mark selective for both Chinook and coho.

b/ Quotas are non-mark-selective for Chinook and mark-selective for coho.

c/ Does not include Buoy 10 fishery. Expected catch in August and September: Alternative I - 45,000 marked coho; Alternative II - 55,000 marked coho; Alternative III - 65,000 marked coho.

d/ The quota consists of both mark-selective and non-mark-selective coho quotas: 100,000 and 20,000 respectively.

e/ The quota consists of both mark-selective and non-mark-selective coho quotas: 97,000 and 18,000 respectively.

f/ The quota consists of both mark-selective and non-mark-selective coho quotas: 95,000 and 17,000 respectively.

TABLE 5. 2022 Projected key stock escapements (thousands of fish) or management criteria for ocean fishery Alternatives - Council adopted [a/] (Page 1 of 3)

Key Stock/Criteria	PROJECTED Alt I	Alt II	Alt III	2022 Criteria	Spawner Objective or Other Comparative Standard as Noted [b/]
CHINOOK					**CHINOOK**
Columbia Upriver Brights	228.7	230.9	232.1	74.0	Minimum ocean escapement to attain 40.0 adults over McNary Dam, with normal distribution and no mainstem harvest. The management goal has been increased to 60.0 by Columbia River managers.
Mid-Columbia Brights	78.3	79.1	79.5	14.9	Minimum ocean escapement to attain 7.9 for Little White Salmon egg-take, assuming average conversion and no mainstem harvest.
Columbia Lower River Hatchery Tules	72.4	73.5	74.0	25.0	Minimum ocean escapement to attain 14.8 adults for hatchery egg-take, with average conversion and no lower river mainstem or tributary harvest.
Columbia Lower River Natural Tules [c/] (threatened)	**40.3%**	**38.8%**	38.0%	≤ 38.0%	Total adult equivalent fishery exploitation rate (2022 NMFS ESA guidance).
Columbia Lower River Wild [e/] (threatened)	10.8	10.9	10.9	6.9	Minimum ocean escapement to attain MSY spawner goal of 5.7 for N. Lewis River fall Chinook (NMFS ESA consultation standard).
Spring Creek Hatchery Tules	89.3	91.9	93.0	8.2	Minimum ocean escapement to attain 6.0 adults for Spring Creek Hatchery egg-take, assuming average conversion and no mainstem harvest.
Upper Columbia River Summer	55.6	56.7	57.6	29.0	Aggregate escapement to mouth of Columbia River.
Snake River Fall (threatened) SRFI	60.0%	53.5%	50.6%	≤ 70.0%	Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).
Klamath River Fall	38.180	38.180	38.180	≥ 38.180	2022 minimum natural area adult escapement (FMP control rule).
Federally recognized tribal harvest	50.0%	50.0%	50.0%	50.0%	Equals 9.4, 9.4, and 9.2 (thousand) adult fish for Yurok and Hoopa Valley tribal fisheries.
Exploitation (spawner reduction) rate	25.0%	25.0%	25.0%	≤ 25.0%	FMP control rule.
Adult river mouth return	66.8	66.9	67.0	NA	Total adults in thousands.
Age-4 ocean harvest rate	10.0%	10.0%	9.9%	≤ 10.0%	NMFS guidance.
KMZ sport fishery share	6.1%	7.1%	5.9%		
River recreational fishery share	22.9%	25.1%	27.6%	NA	Equals 2.2, 2.4, and 2.5 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	14.9%	12.5%	14.0%	≤ 20.0%	Age-3 ocean impact rate in fisheries south of Pt. Arena. In addition, the following season restrictions apply: Recreational- Pt. Arena to Pigeon Pt. between the first Saturday in April and the second Sunday in November; Pigeon Pt. to the U.S./Mexico border between the first Saturday in April and the first Sunday in October. Minimum size limit ≥ 20 inches total length. Commercial- Pt. Arena to the U.S./Mexico border between May 1 and September 30, except Pt. Reyes to Pt. San Pedro between October 1 and 15 (Monday-Friday). Minimum size limit ≥ 26 inches total length (NMFS 2022 ESA Guidance).
Sacramento River Fall	199.9	202.6	197.8	≥ 180.000	2022 minimum hatchery and natural area adult escapement (Council Guidance).
Sacramento Index Exploitation Rate	49.6%	48.9%	50.1%	≤ 69.2%	FMP control rule.
Ocean commercial impacts	92.4	93.2	100.3		Includes fall (Sept-Dec) 2021 impacts (5.7 thousand SRFC).
Ocean recreational impacts	71.6	67.7	66.2		Includes fall (Sept-Dec) 2021 impacts (3.3 thousand SRFC).
River recreational impacts	32.5	33.0	32.2		
SRKW Prey Abundance					
North of Falcon	1,316.1	1,316.1	1,316.1	≥ 966.0	Oct 1 starting abundance of age 3+ Chinook from U.S./Canada Border to Cape Falcon
Oregon Coast	1,114.1	1,114.1	1,114.0	NA	Oct 1 starting abundance of age 3+ Chinook from Cape Falcon to Horse Mt.
California Coast	515.6	515.6	515.5	NA	Oct 1 starting abundance of age 3+ Chinook south of Horse Mt.
Southwest WCVI	686.1	686.1	686.1	NA	Oct 1 starting abundance of age 3+ Chinook off Southwest Vancouver Island
Salish Sea	588.6	588.6	588.6	NA	Oct 1 starting abundance of age 3+ Chinook in the Salish Sea

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2022 ocean fishery Alternatives - Council Adopted[a/] (Page 2 of 3).

Key Stock/Criteria	PROJECTED Alt I	Alt II	Alt III	2022 Criteria	Spawner Objective or Other Comparative Standard as Noted [b/]
COHO	**COHO**				**COHO**
Interior Fraser (Thompson River)	9.7%(6.2%)	8.8%(5.3%)	7.8%(4.3%)	≤ 10.0%	2022 Southern U.S. exploitation rate ceiling; PSC coho agreement.
Skagit	33.4%(5.8%)	32.7%(4.9%)	32.0%(4.1%)	≤ 60.0%	2022 total exploitation rate ceiling; FMP matrix[d/]
Stillaguamish	33.2%(4.2%)	32.7%(3.5%)	32.3%(2.9%)	≤ 50.0%	2022 total exploitation rate ceiling; FMP matrix[d/]
Snohomish	33.3%(4.2%)	32.8%(3.5%)	32.3%(2.9%)	≤ 40.0%	2022 total exploitation rate ceiling; FMP matrix[d/]
Hood Canal	44.7%(6.2%)	44.1%(5.3%)	43.5%(4.3%)	≤ 45.0%	2022 total exploitation rate ceiling; FMP matrix[d/]
Strait of Juan de Fuca	10.6%(5.1%)	9.8%(4.3%)	9.1%(3.6%)	≤ 20.0%	2022 total exploitation rate ceiling; FMP matrix[d/]
Quillayute Fall	11.5	11.6	11.8	6.3	FMP MSY adult spawner estimate. Value depicted is ocean escapement.
	17.7%	16.9%	16.0%	≤ 50%	PST total exploitation rate constraint for 2022.[d/f/]
Hoh	3.8	3.9	4.0	2.0	FMP MSY adult spawner estimate. Value depicted is ocean escapement.
	31.7%	30.0%	27.9%	≤ 57%	PST total exploitation rate constraint for 2022.[d/f/]
Queets Wild	15.0	15.3	15.7	5.8	FMP MSY adult spawner estimate. Value depicted is ocean escapement.
	24.7%	23.2%	21.3%	≤ 65%	FMP total exploitation rate constraint (MFMT).[d/f/]
Grays Harbor	118.0	119.1	120.5	35.4	FMP MSP natural area adult spawner estimate. Value depicted is ocean escapement.
	29.0%	28.3%	27.4%	≤ 65%	FMP total exploitation rate constraint (MFMT).[d/f/]
Willapa Bay	43.2	43.6	44.5	17.2	FMP MSY natural area adult spawner estimate. Value depicted is ocean escapement.
Lower Columbia River Natural (threatened)	14.2%	12.9%	11.1%	≤23.0%	Total marine and mainstem Columbia R. fishery exploitation rate (2022 NMFS ESA guidance). Value depicted is marine ER before Buoy 10.
Upper Columbia[c/]	65%	66%	68%	≥ 50%	Minimum percentage of the run to Bonneville Dam.
Columbia River Hatchery Early	393.0	391.0	400.7	77.2	Minimum ocean escapement to attain hatchery egg-take goal of 21.7 early adult coho, with average conversion and no mainstem or tributary fisheries.
Columbia River Hatchery Late	240.1	250.0	264.9	9.7	Minimum ocean escapement to attain hatchery egg-take goal of 6.4 late adult coho, with average conversion and no mainstem or tributary fisheries.
Oregon Coastal Natural	14.4%	13.8%	14.9%	≤ 15.0%	Marine and freshwater fishery exploitation rate (NMFS ESA consultation standard).
Southern Oregon/Northern California Coast (threatened)					
Trinity Natural	14.1%	14.0%	13.7%	≤ 16.0%	total exploitation rate ceiling
Klamath Natural	8.7%	8.6%	8.3%	≤ 15.0%	total exploitation rate ceiling
Rogue Natural	7.8%	7.7%	7.4%	≤ 15.0%	total exploitation rate ceiling
Other Natural	2.9%	2.8%	2.5%	≤ 15.0%	total exploitation rate ceiling

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2022 ocean fishery Alternatives - Council Adopted[a/] (Page 3 of 3).

a/ Coho projections in the table assume post-season 2018 and 2020 fishery scalars for Canadian fisheries. Model results for Chinook in this table used 2022 allowable catches for SEAK, 2021 preseason effort scalars for NBC and WCVI AABM fisheries, recent 2-yr average catches for BC ISBM fisheries, and 2021 preseason catches for Puget Sound fisheries. Assumptions for these fisheries will be changed prior to the April meeting as new information becomes available.

b/ Ocean escapement is the number of salmon escaping ocean fisheries and entering freshwater with the following clarifications. Ocean escapement for Puget Sound stocks is the estimated number of salmon entering Area 4B that are available to U.S. net fisheries in Puget Sound and spawner escapement after impacts from the Canadian, U.S. ocean, and Puget Sound troll and recreational fisheries have been deducted. Numbers in parentheses represent Council area ERs for Puget Sound coho stocks. For Columbia River early and late coho stocks, ocean escapement represents the number of coho after the Buoy 10 fishery. Values reported for Klamath River fall Chinook are natural area adult spawners. Values reported for Sacramento River fall Chinook are hatchery and natural area adult spawners.

c/ Includes projected impacts of inriver fisheries that have not yet been shaped.

d/ Annual management objectives may be different than FMP goals and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders. It is anticipated that fishery management will be adjusted by state and tribal comanagers during the preseason planning process to comply with stock management objectives.

e/ Includes minor contributions from East Fork Lewis River and Sandy River.

f/ Management criteria depicted represent the lower of the FMP and PST Southern Coho Management Plan ER constraints in a given year (see Table III-5 in most recent Preseason Report I). PST ER constraints represent an approximation of the maximum ER associated with achieving the escapement goal. Per the provisions of the PST Southern Coho Management Plan, Parties may request increases to management unit specific ER caps, so long as it occurs prior to March 31 in a given year.

TABLE 6. Preliminary projections of Chinook and coho harvest impacts for 2022 ocean salmon fishery management Alternatives - Council adopted. (Page 1 of 2)

Area and Fishery	2022 Catch Projection			2022 Bycatch Mortality[a/] Projection			2022 Bycatch Projection[b/]			Observed in 2021	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
OCEAN FISHERIES:					**CHINOOK (thousands of fish)**						
NORTH OF CAPE FALCON											
Treaty Indian Ocean Troll	50.0	40.0	30.0	5.1	4.1	3.1	12.8	10.2	7.7	8.2	0.8
Non-Indian Commercial Troll	32.5	30.0	26.5	13.9	12.9	10.6	49.9	46.1	37.8	19.3	7.8
Recreational	32.5	30.0	26.5	3.9	3.6	3.2	18.0	16.7	14.7	17.8	2.2
CAPE FALCON TO HUMBUG MT.[c/]											
Commercial Troll	49.1	34.8	42.5	11.3	8.0	9.8	32.5	23.1	28.2	16.9	4.9
Recreational	11.8	11.8	1.3	1.3	1.3	2.6	4.8	4.7	13.3	5.5	0.6
HUMBUG MT. TO OR/CA BORDER											
Commercial Troll	1.5	0.8	2.6	0.3	0.2	0.6	1.0	0.5	1.7	0.4	0.1
Recreational	2.3	1.1	0.6	0.5	0.2	0.1	2.4	0.9	0.3	0.9	0.4 [d/]
OR/CA BORDER TO to LAT 40°10' N.											
Commercial Troll	-	-	-	-	-	-	-	-	-	0.0	-
Recreational	2.2	2.6	2.9	0.2	0.3	0.3	0.9	1.0	1.2	0.6	0.3 [d/]
LAT 40°10' N. TO PT. ARENA											
Commercial Troll	23.2	7.4		5.4	1.7		15.4	4.9		43.7	17.0 [d/]
Recreational	10.0	8.5	11.5	1.1	1.0	1.3	4.0	3.4	4.6	3.7	0.4 [d/]
PT. ARENA TO PIGEON PT.											
Commercial Troll	24.5	36.1	41.2	5.7	8.3	9.5	16.2	23.9	27.3	104.9	21.5 [d/]
Recreational	50.6	46.9	46.2	5.8	5.3	5.2	18.7	17.4	17.1	34.0	3.9 [d/]
SOUTH OF PIGEON PT.											
Commercial Troll	36.3	43.1	47.2	8.4	9.9	10.9	24.1	28.5	31.3	52.8	8.7 [d/]
Recreational	20.7	20.7	20.7	2.4	2.4	2.4	7.7	7.7	7.7	17.0	1.8 [d/]
TOTAL OCEAN FISHERIES											
Commercial Troll	217.1	192.1	190.0	50.1	45.2	44.5	151.9	137.3	134.0	246.3	60.9
Recreational	130.2	121.6	109.8	15.3	14.1	15.1	56.5	51.9	58.8	79.5	9.4
INSIDE FISHERIES:											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.8	3.0 [d/]

TABLE 6. Preliminary projections of Chinook and coho harvest impacts for 2022 ocean salmon fishery management Alternatives - Council adopted. (Page 2 of 2).

Area and Fishery	2022 Catch Projection			2022 Bycatch Mortality[a/] Projection			2022 Bycatch Projection[b/]			Observed in 2021	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
OCEAN FISHERIES:	**COHO (thousands of fish)**										
NORTH OF CAPE FALCON											
Treaty Indian Ocean Troll[e/]	62.0	52.0	42.0	4.1	3.4	2.6	6.8	5.6	4.2	26.4	1.3
Non-Indian Commercial Troll	33.6	29.6	25.6	14.9	13.2	10.7	47.8	42.5	34.0	3.5	2.0
Recreational	176.4	155.4	134.4	31.4	27.6	23.5	133.5	117.3	99.7	64.2	15.6
SOUTH OF CAPE FALCON											
Commercial Troll	0.0	10.0	0.0	10.0	9.7	8.3	38.6	34.6	31.7	2.1	3.2
Recreational[e/]	120.0	115.0	112.0	27.1	26.5	25.1	126.6	125.1	116.6	79.0	24.1
TOTAL OCEAN FISHERIES											
Commercial Troll	95.6	91.6	67.6	29.0	26.3	21.6	93.3	82.7	69.9	32.0	6.5
Recreational	296.4	270.4	246.4	58.5	54.1	48.6	260.1	242.4	216.3	143.2	39.7
INSIDE FISHERIES:											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	45.0	55.0	65.0	8.5	10.4	12.0	36.9	45.0	51.8	7.1	1.7[d/]

a/ The bycatch mortality reported in this table consists of drop-off mortality (includes predation on hooked fish) plus hook-and-release mortality of Chinook and coho salmon in Council-area fisheries. Drop-off mortality for both Chinook and coho is assumed to be equal to 5% of total encounters. The hook-and-release mortality (HRM) rates used for both Chinook and coho are:

Commercial: 26%.

Recreational, north of Pt. Arena: 14%.

Recreational, south of Pt. Arena: 16% (based on the expected proportion of fish that will be caught using mooching versus trolling gear, and the HRMs of 42.2% and 14% for these two respective gear types).

b/ Bycatch calculated as dropoff mortality plus fish released.

c/ Includes Oregon territorial water, late season Chinook fisheries.

d/ Based on reported released Chinook or coho. Reported releases in California fisheries are used as a surrogate in Oregon fisheries.

e/ Includes fisheries that allow retention of all legal sized coho.

TABLE 7. Expected coastwide exploitation rates by fishery for 2022 ocean fisheries management Alternatives for lower Columbia Natural (LCN), Oregon coastal natural (OCN), Lower Columbia River (LCR) tule Chinook, and Southern Oregon Northern California Coastal (SONCC) coho salmon by natural-origin subcomponent - Council Adopted (Page 1 of 2)

	Exploitation Rate (Percent)								
	LCN Coho			OCN Coho			LCR Tule Chinook		
Fishery	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	2.9%	2.9%
BRITISH COLUMBIA	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	12.1%	12.3%	12.5%
PUGET SOUND/STRAIT	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.4%	0.4%	0.4%
NORTH OF CAPE FALCON									
Treaty Indian Ocean Troll	2.6%	2.2%	1.8%	0.6%	0.5%	0.4%	2.8%	2.2%	1.7%
Recreational	5.3%	4.6%	3.9%	0.9%	0.8%	0.7%	3.8%	3.5%	3.1%
Non-Indian Troll	1.4%	1.2%	1.0%	0.3%	0.2%	0.2%	5.0%	4.6%	4.1%
SOUTH OF CAPE FALCON									
Recreational:							0.6%	0.5%	0.4%
Cape Falcon to Humbug Mt.	3.9%	3.7%	3.5%	8.4%	7.8%	7.3%	-	-	-
Humbug Mt. to OR/CA border (KMZ)	0.1%	0.0%	0.1%	0.2%	0.2%	0.2%	-	-	-
OR/CA border to Latitude 40°10' N. (KMZ)	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%	-	-	-
Fort Bragg	0.0%	0.0%	0.0%	0.1%	0.2%	0.2%	-	-	-
South of Pt. Arena	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	-	-	-
Troll:							2.7%	1.9%	2.4%
Cape Falcon to Humbug Mt.	0.6%	0.8%	0.5%	0.6%	0.8%	0.5%	-	-	-
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	-
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	-
Fort Bragg	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	-	-	-
South of Pt. Arena	0.0%	0.0%	0.0%	0.1%	0.2%	0.2%	-	-	-
BUOY 10	1.6%	1.9%	2.2%	0.1%	0.1%	0.1%	10.1%	10.4%	10.5%
ESTUARY/FRESHWATER	NA	NA	NA	2.4%	2.4%	4.6%			
TOTAL[a/]	14.2%	12.9%	11.1%	14.4%	13.8%	14.9%	**40.3%**	**38.8%**	38.0%

TABLE 7. Expected coastwide exploitation rates by fishery for 2022 ocean fisheries management Alternatives for lower Columbia Natural (LCN), Oregon coastal natural (OCN), Lower Columbia River (LCR) tule Chinook, and Southern Oregon Northern California Coastal (SONCC) coho salmon by natural-origin subcomponent - Council Adopted (Page 2 of 2).

	Exploitation Rate (Percent)											
	Trinity Natural			Klamath Natural			Rogue Natural			Other SONCC		
Fishery	I	II	III	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BRITISH COLUMBIA	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
PUGET SOUND/STRAIT	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NORTH OF CAPE FALCON												
Treaty Indian Ocean Troll	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Recreational	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Non-Indian Troll	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SOUTH OF CAPE FALCON												
Recreational:												
Cape Falcon to Humbug Mt.	0.6%	0.5%	0.5%	0.6%	0.5%	0.5%	0.6%	0.5%	0.5%	0.6%	0.5%	0.5%
Humbug Mt. to OR/CA border (KMZ)	0.4%	0.3%	0.4%	0.4%	0.3%	0.4%	0.4%	0.3%	0.4%	0.4%	0.3%	0.4%
OR/CA border to Latitude 40°10' N. (KMZ)	0.7%	0.7%	0.2%	0.7%	0.7%	0.2%	0.7%	0.7%	0.2%	0.7%	0.7%	0.2%
Fort Bragg	0.4%	0.6%	0.7%	0.4%	0.6%	0.7%	0.4%	0.6%	0.7%	0.4%	0.6%	0.7%
South of Pt. Arena	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Troll:												
Cape Falcon to Humbug Mt.	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Humbug Mt. to OR/CA border (KMZ)	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fort Bragg	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%
South of Pt. Arena	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
BUOY 10	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ESTUARY/FRESHWATER	11.2%	11.2%	11.2%	5.8%	5.8%	5.8%	4.9%	4.9%	4.9%	0.0%	0.0%	0.0%
TOTAL	14.1%	14.0%	13.7%	8.7%	8.6%	8.3%	7.8%	7.7%	7.4%	2.9%	2.8%	2.5%

a/ Totals do not include Buoy 10 and estuary/freshwater for LCN; estuary/freshwater catch is included in the total for OCN and SONCC populations. For LCR Tule Chinook, includes projected impacts of inriver fisheries that have not yet been shaped. Bolded values identify ocean exploitation rates that, when combined with freshwater harvest rates, would exceed the total allowable exploitation rate.

TABLE 8. Projected coho mark rates for 2022 fisheries under base period fishing patterns (percent marked).

Area	Fishery	June	July	August	Sept
Canada					
Johnstone Strait	Recreational	--	36%	34%	--
West Coast Vancouver Island	Recreational	47%	39%	38%	39%
North Georgia Strait	Recreational	50%	50%	50%	46%
South Georgia Strait	Recreational	48%	53%	46%	48%
Juan de Fuca Strait	Recreational	49%	49%	51%	48%
Johnstone Strait	Troll	58%	49%	40%	47%
NW Vancouver Island	Troll	47%	43%	43%	43%
SW Vancouver Island	Troll	55%	50%	51%	52%
Georgia Strait	Troll	56%	55%	57%	53%
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	63%	54%	52%	50%
Strait of Juan de Fuca (Area 6)	Recreational	57%	51%	52%	48%
San Juan Island (Area 7)	Recreational	44%	54%	49%	40%
North Puget Sound (Areas 6 & 7A)	Net	--	56%	51%	44%
Council Area					
Neah Bay (Area 4/4B)	Recreational	44%	59%	54%	60%
LaPush (Area 3)	Recreational	57%	62%	65%	54%
Westport (Area 2)	Recreational	72%	69%	66%	60%
Columbia River (Area 1)	Recreational	74%	75%	69%	71%
Tillamook	Recreational	67%	62%	56%	47%
New port	Recreational	61%	57%	55%	43%
Coos Bay	Recreational	53%	50%	39%	24%
Brookings	Recreational	48%	36%	33%	6%
Neah Bay (Area 4/4B)	Troll	55%	55%	56%	56%
LaPush (Area 3)	Troll	54%	57%	54%	54%
Westport (Area 2)	Troll	59%	63%	64%	63%
Columbia River (Area 1)	Troll	72%	71%	68%	58%
Tillamook	Troll	63%	61%	61%	59%
New port	Troll	60%	58%	54%	53%
Coos Bay	Troll	52%	49%	44%	29%
Brookings	Troll	44%	44%	48%	66%
Columbia River					
Buoy 10	Recreational	--	--	--	68%

TABLE 9. Preliminary projected exvessel value under Council-adopted 2022 non-Indian commercial troll regulatory Alternatives compared to 2021 and the 2017-2021 average (in inflation-adjusted dollars).

		Exvessel Value (thousands of dollars)[a/]				
Management Area	Alternative	2022 Projected[b/]	2021 Actual	Percent Change from 2021	2017-2021 Average	Percent Change From 2017-2021 Average
North of Cape Falcon	I	4,138	2,019	+105%	2,234	+85%
	II	3,786		+87%		+69%
	III	3,331		+65%		+49%
Cape Falcon to Humbug Mt.	I	5,745	1,993	+188%	1,893	+203%
	II	4,317		+117%		+128%
	III	4,973		+149%		+163%
Humbug Mt. to OR/CA Border	I	200	56	+257%	166	+21%
	II	106		+88%		-36%
	III	353		+531%		+113%
OR/CA Border to 40º10' N. Lat.	I	0	0	-	218	-100%
	II	0		-		-100%
	III	0		-		-100%
40º10' N. Lat. to Pt. Arena	I	1,770	3,264	-46%	1,039	+70%
	II	560		-83%		-46%
	III	0		-100%		-100%
Pt. Arena to Pigeon Pt.	I	2,312	9,718	-76%	8,024	-71%
	II	3,409		-65%		-58%
	III	3,892		-60%		-51%
South of Pigeon Pt.	I	4,015	5,722	-30%	3,931	+2%
	II	4,759		-17%		+21%
	III	5,221		-9%		+33%
Total South of Cape Falcon	I	14,042	20,753	-32%	15,271	-8%
	II	13,152		-37%		-14%
	III	14,439		-30%		-5%
West Coast Total	I	18,180	22,772	-20%	17,505	+4%
	II	16,937		-26%		-3%
	III	17,771		-22%		+2%

a/ Values are inflation-adjusted to 2021 dollars. Exvessel values are not comparable to the income impacts shown in Table 10.

b/ Projections are based on expected catches in the Council management area and estimated 2021 average weights and exvessel prices.

TABLE 10. Preliminary projected angler trips and coastal community income impacts generated under Council-adopted 2022 recreational ocean salmon fishery regulatory Alternatives compared to 2021 and the 2017-2021 average (in inflation-adjusted dollars).

		Angler Trips (thousands)			Community Income Impacts (thousands of dollars)[a/]			Percent Change in Income Impacts	
Management Area	Alternative	Estimates Based on the Options	2021 Actual	2017-2021 Avg.	Estimates Based on the Options	2021 Actual	2017-2021 Avg.	Compared to 2021	Compared to 2017-2021 Avg.
North of Cape Falcon[b/]	I	182.6	62.8	59.3	28,401	9,777	8,762	+191%	+224%
	II	161.8			25,176			+158%	+187%
	III	140.4			21,837			+123%	+149%
Cape Falcon to Humbug Mt.	I	66.1	79.9	56.7	5,479	6,624	4,414	-17%	+24%
	II	62.6			5,189			-22%	+18%
	III	42.3			3,505			-47%	-21%
Humbug Mt. to OR/CA Border	I	2.3	5.9	5.1	161	410	335	-61%	-52%
	II	6.2			433			+6%	+29%
	III	3.7			259			-37%	-23%
OR/CA Border to 40º10' N. Lat.	I	10.1	2.2	4.5	1,350	298	555	+353%	+143%
	II	10.8			1,447			+385%	+161%
	III	4.3			577			+93%	+4%
40º10' N. Lat. to Pt. Arena	I	12.9	8.6	7.2	2,116	1,413	1,186	+50%	+78%
	II	13.1			2,139			+51%	+80%
	III	16.7			2,726			+93%	+130%
Pt. Arena to Pigeon Pt.	I	56.3	45.4	53.7	14,672	11,838	13,514	+24%	+9%
	II	52.0			13,574			+15%	+0%
	III	50.3			13,118			+11%	-3%
South of Pigeon Pt.	I	34.3	31.9	19.1	5,168	4,807	2,720	+8%	+90%
	II	34.2			5,156			+7%	+90%
	III	34.1			5,141			+7%	+89%
Total South of Cape Falcon	I	182.0	173.9	146.2	28,947	25,390	22,724	+14%	+27%
	II	178.9			27,937			+10%	+23%
	III	151.4			25,327			-0%	+11%
West Coast Total	I	364.5	236.8	205.5	57,348	35,167	31,486	+63%	+82%
	II	340.8			53,114			+51%	+69%
	III	291.7			47,164			+34%	+50%

a/ Income impacts are not comparable to the exvessel values shown in Table 9. All dollar values are expressed in inflation-adjusted 2021 dollars.
b/ Does not include Buoy 10 fishery.

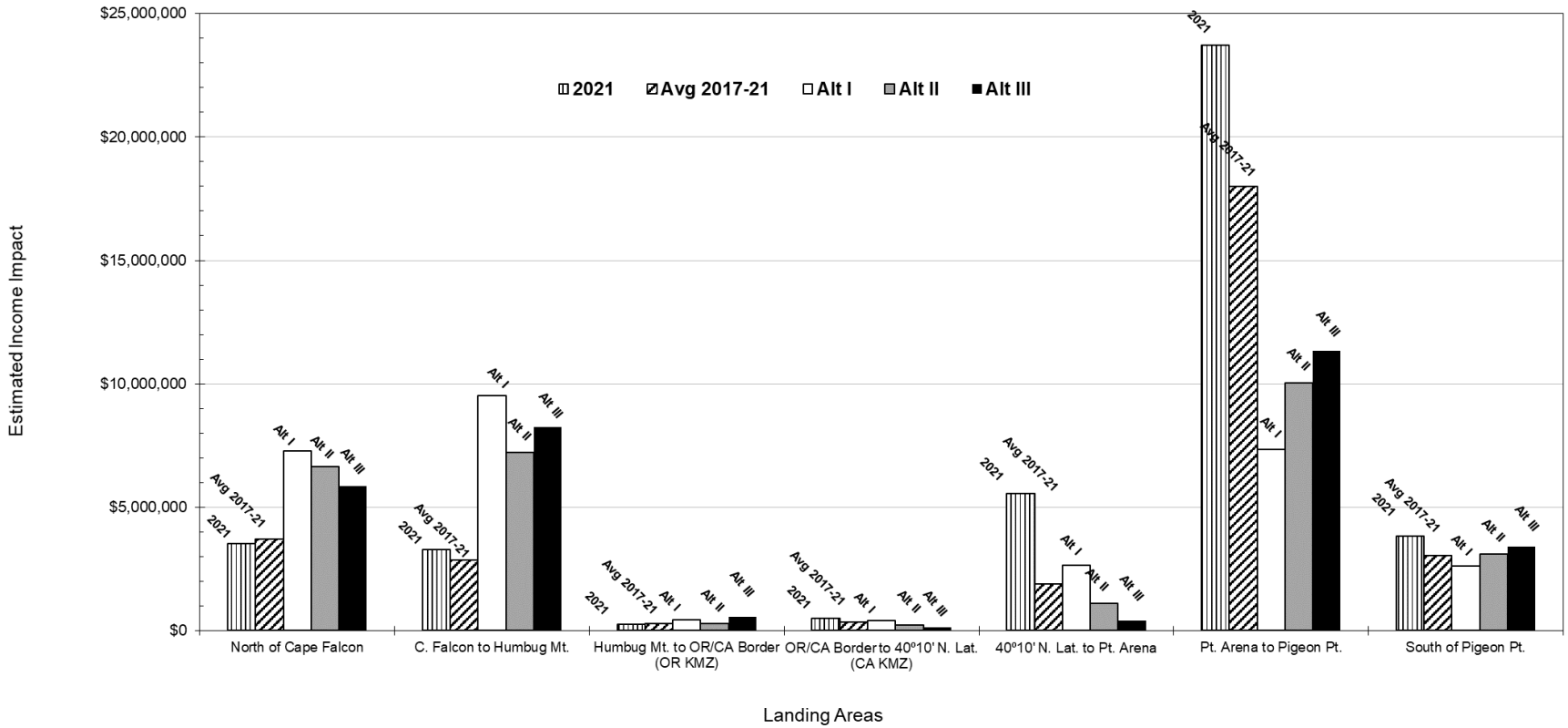

FIGURE 1. Projected community income impacts associated with landings projected under the Council adopted 2022 commercial fishery Alternatives compared to 2021 and the 2017-2021 average (in inflation-adjusted dollars).

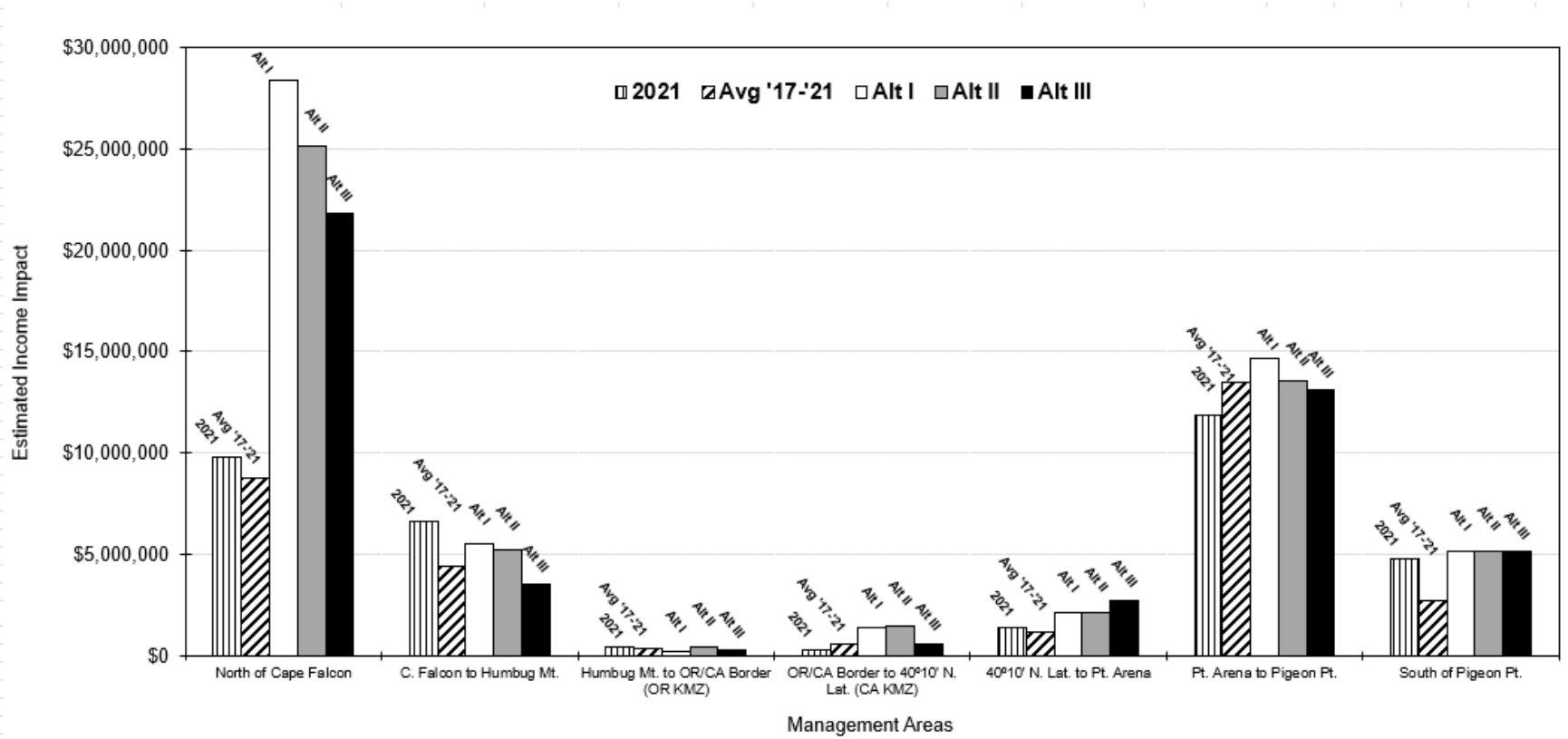

FIGURE 2. Projected community income impacts associated with angler effort projected under the Council adopted 2022 recreational fishery Alternatives compared to 2021 and the 2017-2021 average (in inflation-adjusted dollars).

APPENDIX A: PROJECTED IMPACTS FOR AGE-3 SACRAMENTO RIVER WINTER CHINOOK, ADULT KLAMATH RIVER FALL CHINOOK, AND ADULT SACRAMENTO RIVER FALL CHINOOK.

Table A-1. Sacramento River winter Chinook age-3 ocean impact rate south of Point Arena by fishery and Alternative. The impacts are displayed as a percent for each Alternative by fishery, port area, and month. Max rate: 20%.

Commercial

Alternative I 14.9 Total

Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF			0.16	0.12	0.19	0.07			0.54
MO	0.31	0.95	0.27	0.25					1.78
Total	0.31	0.95	0.43	0.37	0.19	0.07	0.00	0.00	2.32

Alternative II 12.5 Total

Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF			0.25	0.26	0.19	0.07			0.78
MO	0.37	1.21	0.25						1.83
Total	0.37	1.21	0.50	0.26	0.19	0.07	0.00	0.00	2.60

Alternative III 14.0 Total

Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF			0.28	0.20	0.20	0.07			0.75
MO	0.41	1.13	0.28	0.25					2.06
Total	0.41	1.13	0.57	0.44	0.20	0.07	0.00	0.00	2.81

Recreational

Alternative I

Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.28	0.84		2.14	0.72	0.12	0.19	0.04		4.33
MO	1.27	1.26	1.66	2.89	1.06	0.07				8.21
Total	1.55	2.10	1.66	5.03	1.78	0.19	0.19	0.04	0.00	12.55

Alternative II

Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.28	0.18		2.18	0.74	0.12	0.20			3.70
MO	1.27	0.58	1.04	2.28	0.96	0.07				6.19
Total	1.55	0.75	1.04	4.46	1.70	0.19	0.20	0.00	0.00	9.89

Alternative III

Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.28		0.32	1.64	0.64	0.11				2.99
MO	1.27	1.26	1.67	2.90	1.06	0.07				8.24
Total	1.55	1.26	1.99	4.54	1.70	0.19	0.00	0.00	0.00	11.23

SF Pt. Arena to Pigeon Pt. (San Francisco)
MO Pigeon Pt. to the U.S./Mexico Border (Monterey)

Table A-2. Klamath River fall Chinook ocean impacts in numbers of fish by fishery and Alternative.

Commercial

Alternative I

38,180 natural area spawners, 25.0% spawner reduction rate, 10.0% age-4 ocean harvest rate

Port	Fall 2021		Summer 2022						Summer	Year
Area	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	0	23	23	9	230	772	570	1,627	1,627
CO	11	0			40			193	233	244
KO			0	0		105	71	64	240	240
KC										
FB	193						612	939	1,551	1,744
SF	0	0					903	358	1,261	1,261
MO					338	271	91	48	748	748
Total	204	0	23	23	386	607	2,449	2,172	5,660	5,864

Alternative II

38,180 natural area spawners, 25.0% spawner reduction rate, 10.5% age-4 ocean harvest rate

Port	Fall 2021		Summer 2022						Summer	Year
Area	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	0	23	23	9	62	239		356	356
CO	11	0			40	913	520		1,473	1,484
KO			0	0		72	36		108	108
KC										
FB	193							510	510	703
SF	0	0					1,355	780	2,135	2,135
MO					405	339	81		825	825
Total	204	0	23	23	454	1,387	2,230	1,290	5,407	5,611

Alternative III

38,180 natural area spawners, 25.0% spawner reduction rate, 9.9% age-4 ocean harvest rate

Port	Fall 2021		Summer 2022						Summer	Year
Area	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	0	23	23	3	122	769	705	1,645	1,645
CO	11	0			42			237	279	290
KO			0	0	140	105	89		334	334
KC										
FB	193									193
SF	0	0					1,783	684	2,467	2,467
MO					422	312	111	56	901	901
Total	204	0	23	23	606	540	2,751	1,682	5,625	5,829

Recreational

Alternative I

Port	Fall 2021			Summer 2022						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	0		0	14	0	0	3	153	170	170
CO	0	0		0	0	0	0	9	396	405	405
KO						12	192	4	36	244	244
KC						113			152	265	265
FB	0	0				38		255	59	352	352
SF	0	0			0	31		449	120	600	600
MO	0				0	0	0	0	0	0	0
Total	0	0	0	0	14	194	192	720	917	2,037	2,037

Alternative II

Port	Fall 2021			Summer 2022						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	0		0	14	0	0	3	153	170	170
CO	0	0		0	0	0	0	9	395	404	404
KO							8	22	180	210	210
KC						113		60	151	324	324
FB	0	0				38	58	114	59	269	269
SF	0	0			0	14		446	119	579	579
MO	0				0	0	0	0	0	0	0
Total	0	0	0	0	14	165	65	655	1,057	1,956	1,956

Alternative III

Port	Fall 2021			Summer 2022						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	0		0	14	0	0	3	38	55	55
CO	0	0		0	0	0	0	9	80	89	89
KO							42	22		64	64
KC								352		352	352
FB	0	0				35	56	249	58	398	398
SF	0	0			0		119	438	117	674	674
MO	0				0	0	0	0	0	0	0
Total	0	0	0	0	14	35	217	1,073	293	1,632	1,632

NO Cape Falcon to S. End of Heceta Bank
CO S. End of Heceta Bank to Humbug Mt.
KO Humbug Mt. to OR/CA Border (Oregon KMZ)
KC OR/CA Border to latitude 40°10′ N. (California KMZ)
FB Southern KMZ Boundary to Pt. Arena (Fort Bragg)
SF Pt. Arena to Pigeon Pt. (San Francisco)
MO Pigeon Pt. to U.S./Mexico Border (Monterey)

Table A-3. Sacramento River fall Chinook ocean impacts in numbers of fish by fishery and Alternative.

Commercial

Alternative I 164,039 Total

Port	Fall 2021		Summer 2022						Summer	Year
Area	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	8	3,348	3,157	3,310	5,318	5,794	1,101	22,028	22,036
CO	0	0			3,417			586	4,003	4,003
KO			0	0		320	200	70	590	590
KC										
FB	1,166						6,313	6,619	12,932	14,098
SF	3,844	682					8,635	4,796	13,431	17,957
MO					20,638	10,857	1,873	385	33,753	33,753
Total	5,010	690	3,348	3,157	27,365	16,496	22,814	13,558	86,738	92,438

Alternative II 160,831 Total

Port	Fall 2021		Summer 2022						Summer	Year
Area	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	8	3,348	3,157	3,310	1,443	1,825		13,083	13,091
CO	0	0			3,417	2,762	476		6,655	6,655
KO			0	0		220	100		320	320
KC										
FB	1,166							3,646	3,646	4,812
SF	3,844	682					13,172	10,533	23,705	28,231
MO					24,765	13,572	1,709		40,046	40,046
Total	5,010	690	3,348	3,157	31,492	17,997	17,282	14,178	87,454	93,154

Alternative III 166,508 Total

Port	Fall 2021		Summer 2022						Summer	Year
Area	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	0	8	3,348	3,157	969	2,836	5,794	1,376	17,480	17,488
CO	0	0			3,559			733	4,292	4,292
KO			0	0	207	320	250		777	777
KC										
FB	1,166									1,166
SF	3,844	682					18,112	10,035	28,147	32,673
MO					27,517	13,572	2,350	463	43,902	43,902
Total	5,010	690	3,348	3,157	32,252	16,728	26,505	12,607	94,597	100,297

Recreational

Alternative I

Port	Fall 2021			Summer 2022						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	45	0		11	0	8	160	478	193	850	895
CO	0	0		0	15	22	194	407	107	745	745
KO						48	232	66	28	374	374
KC						3,133			1,802	4,935	4,935
FB	0	574				666		3,677	1,674	6,017	6,591
SF	2,083	463			3,475	6,285		17,831	8,994	36,585	39,131
MO	94	0			9,948	2,418	2,308	3,440	721	18,835	18,929
Total	2,222	1,037		11	13,439	12,580	2,894	25,899	13,519	68,342	71,601

Alternative II

Port	Fall 2021			Summer 2022						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	45	0		11	0	8	87	478	193	777	822
CO	0	0		0	15	22	121	407	107	672	672
KO							7	473	181	661	661
KC						3,133		244	1,802	5,179	5,179
FB	0	574				666	950	1,660	1,674	4,950	5,524
SF	2,083	463			3,475	3,041		17,831	8,994	33,341	35,887
MO	94	0			9,948	2,418	2,308	3,440	721	18,835	18,929
Total	2,222	1,037		11	13,439	9,288	3,474	24,533	13,673	64,418	67,677

Alternative III

Port	Fall 2021			Summer 2022						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	45	0		11	0	8	87	478	37	621	666
CO	0	0		0	15	22	121	407	17	582	582
KO							51	473		524	524
KC								1,463		1,463	1,463
FB	0	574				666	950	3,677	1,674	6,967	7,541
SF	2,083	463			3,475		3,660	17,831	8,994	33,960	36,506
MO	94	0			9,948	2,418	2,308	3,440	721	18,835	18,929
Total	2,222	1,037		11	13,439	3,114	7,177	27,769	11,442	62,952	66,211

NO Cape Falcon to S. End of Heceta Bank
CO S. End of Heceta Bank to Humbug Mt.
KO Humbug Mt. to OR/CA Border (Oregon KMZ)
KC OR/CA Border to latitude 40°10′ N. (California KMZ)
FB Southern KMZ Boundary to Pt. Arena (Fort Bragg)
SF Pt. Arena to Pigeon Pt. (San Francisco)
MO Pigeon Pt. to U.S./Mexico Border (Monterey)

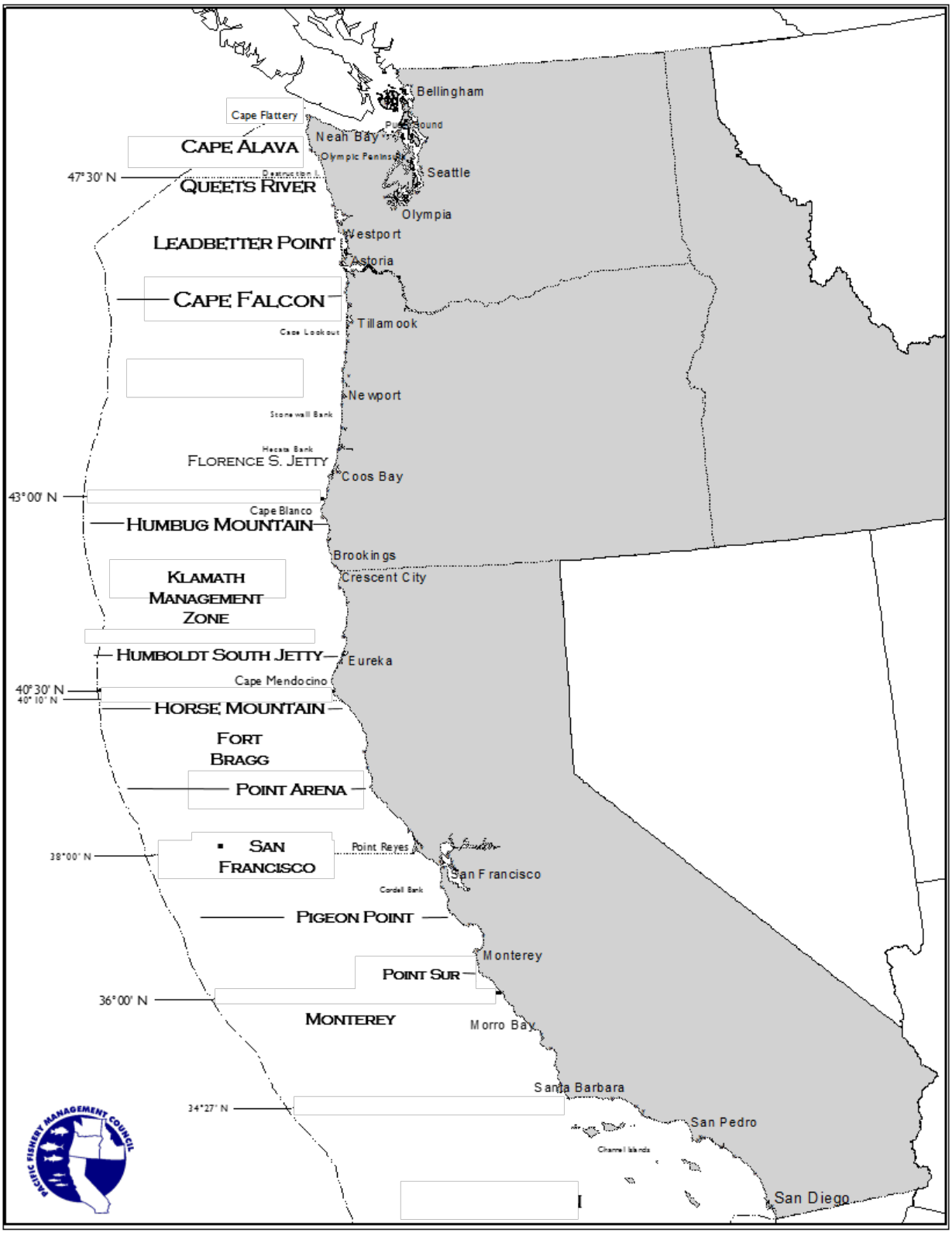

FIGURE 3. Map of Pacific West Coast with major salmon ports and management boundaries. This map is for reference only and is not intended for use in navigation or fishery regulation.