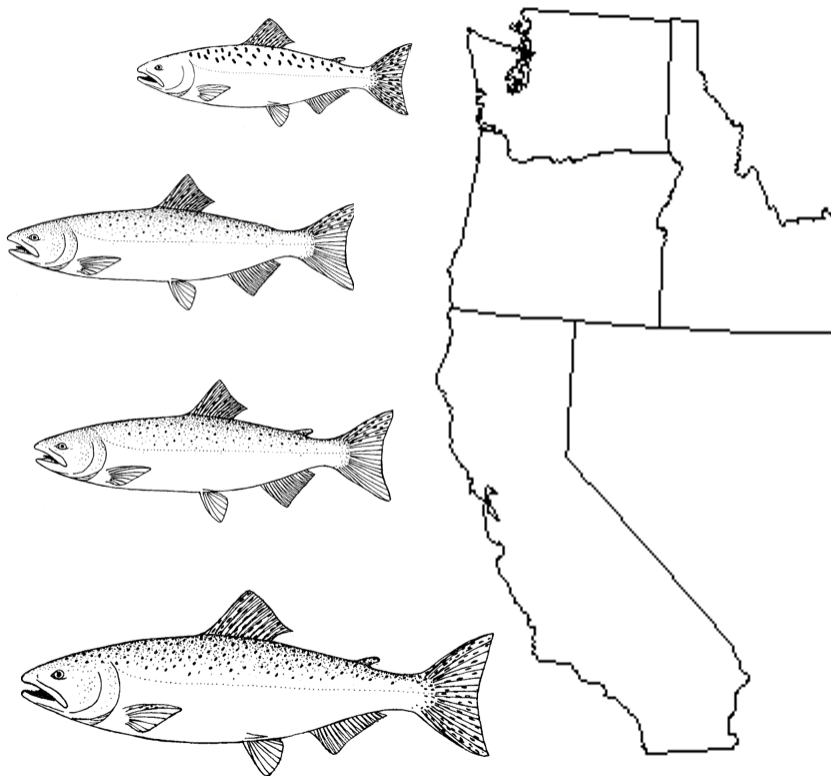


**PRESEASON REPORT III**  
**COUNCIL ADOPTED MANAGEMENT MEASURES**  
**AND**  
**ENVIRONMENTAL ASSESSMENT PART 3**  
**FOR**  
**2022 OCEAN SALMON FISHERY REGULATIONS**  
REGULATION IDENTIFIER NUMBER 0648-BK78



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**APRIL 2022**

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## LIST OF ACRONYMS AND ABBREVIATIONS

AABM	Aggregate Abundance Based Management
ABC	Acceptable Biological Catch
ACL	Annual Catch Limit(s)
AI	Abundance Index
BiOp	biological opinion
CDFW	California Department of Fish and Wildlife
Council	Pacific Fishery Management Council
CPUE	catch per unit effort
CYER	Calendar year exploitation rate
EA	Environmental Assessment
EEZ	Economic Exclusive Zone
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FMP	fishery management plan
FONSI	finding of no significant impact
FRAM	Fishery Regulation Assessment Model
GSI	genetic stock identification
IPHC	International Pacific Halibut Commission
ISBM	Individual Stock Based Management
KMZ	Klamath Management Zone (Humbug Mountain to Horse Mountain)
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
MSY	maximum sustainable yield
NBC	Northern British Columbia
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
OCN	Oregon coastal natural (coho)
OFL	Overfishing Limit
OPI	Oregon Production Index
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
SAS	Salmon Advisory Subpanel
SCH	Spring Creek Hatchery (Col. R. tule fall Chinook returning to Spring Creek Hatchery [above Bonneville Dam])
SEAK	Southeast Alaska
S <sub>MSY</sub>	Spawning escapement associated with maximum sustainable yield
SONCC	Southern Oregon/Northern California Coast (coho ESU)
SRFC	Sacramento River fall Chinook
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)
TAC	Total Allowable Catch
WCVI	West Coast Vancouver Island
WDFW	Washington Department of Fish and Wildlife

## 1.0 INTRODUCTION

This report, referred to as Preseason III, is the last 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 development of ocean salmon fishery management measures for fisheries off the coasts of Washington, Oregon, and California. This report describes the Council's 2022<sup>1</sup> ocean salmon management measures adopted for submission to the U.S. Secretary of Commerce and characterizes the expected impacts on ocean salmon fisheries and the stocks which support them.

This report also constitutes the third and final part of an Environmental Assessment (EA) to comply with National Environmental Policy Act (NEPA) requirements for the 2022 ocean salmon regulations and includes a description and analysis of the Proposed Action. An EA is used to determine whether an action being considered by a Federal agency has significant environmental impacts. The first part of this EA (Preseason Report I; PFMC 2022b, 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 on the salmon stocks included in the Council's Fishery Management Plan (FMP). This second part of this EA (Preseason Report II; PFMC 2022c), incorporated herein by reference), 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. Along with the description and analysis of the Proposed Action in this report, these three parts of the EA will provide the necessary components to determine if a finding of no significant impact (FONSI) or Environmental Impact Statement (EIS) is warranted.

The Council's Proposed Action for the 2022 ocean salmon fishery regulations meet all objectives of the FMP (Section 3), including Annual Catch Limits (ACLs) set according to the FMP and described in Preseason Report I; the level of protection required by all consultation standards for salmon species listed under the Endangered Species Act (ESA) (Section 4); and the obligations under the Pacific Salmon Treaty (PST) (Section 5).

Under the Council's recommended management measures, salmon stocks originating from Washington, Oregon, and California meet all of the applicable conservation objectives in the FMP.

The Sacramento River fall Chinook (SRKC), Klamath River fall Chinook (KRFC), Queets natural coho, Strait of Juan de Fuca natural coho and Snohomish natural coho salmon stocks met the criteria for overfished status in 2018, and the Council adopted rebuilding plans for these stocks in 2019. In 2021 Sacramento River fall Chinook met the criteria for rebuilt status and Snohomish natural coho continued to meet the criteria for rebuilding status. Klamath River fall Chinook, Queets natural coho, and Strait of Juan de Fuca natural coho remain overfished based on this current assessment.

In the 2021 Review of Ocean Salmon Fisheries (2021 Review, PFMC 2022a, incorporated herein by reference), based on information available at the time, the STT reported that Hood Canal natural coho met the criteria for overfished status, as the geometric mean for the three most recent years of spawning escapement (2018-2020) was less than the minimum stock size threshold (MSST) of 10,750. Since the publication of the 2021 Review, new information has become available, including a 2021 spawning escapement estimate (reviewed and agreed to by the co-managers). This new information increases the three-year geometric mean spawning escapement (2019-2021) to a level that is greater than both the MSST and  $S_{MSY}$  for this stock, therefore, Hood Canal natural coho no longer meet the criteria of overfished status as originally reported in the 2021 Review (see Section 7.1 and Table 12 details).

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<sup>1</sup> 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.

## 2.0 SELECTION OF FINAL MANAGEMENT MEASURES

The following figures and tables describe the Council-adopted management measures covering the period from May 16, 2022 through May 15, 2023 unless modified inseason:

- Table 1 - Non-Indian commercial ocean salmon management measures;
- Figure 1 - Geographic outline of commercial troll (non-Indian) ocean salmon seasons;
- Table 2 - Recreational ocean salmon management measures;
- Figure 2 - Geographic outline of recreational ocean salmon seasons;
- Table 3 - Treaty Indian commercial ocean management measures; and
- Table 4 - Allowable catch quotas for Chinook and coho.

In addition, Tables 5, 6, and 7 provide information on the biological impacts and landing estimates for the Council's management recommendations. Table 8 displays the expected mark (healed adipose fin-clip) rate for coho encountered in Council adopted mark-selective fisheries. Tables 9 and 10, and Figures 3 and 4 provide information on the economic impacts of the proposed fisheries. Table 11 summarizes environmental effects of the Proposed Action and Alternatives. The assessment of stock status with regard to overfished, overfishing, and approaching an overfished condition is described in Table 12.

The 2022 seasons are constrained primarily by: (1) California Coastal Chinook and lower Columbia River natural tule Chinook south of Cape Falcon, and (2) lower Columbia River natural tule Chinook and Puget Sound Chinook north of Cape Falcon.

Regulations and expected fishing patterns for the Treaty Indian ocean fisheries were developed by the Hoh, S'Klallam, Makah, Quileute, and Quinault tribes for their respective fisheries.

### 2.1 *Inseason Management*

Inseason changes are made to meet the preseason intent of the management measures described in this document, but must also meet the Council's FMP goals, especially in regard to conservation and allocation goals, Federally-recognized Indian fishing rights, consultation standards for ESA-listed salmon stocks, and obligations under the PST.

Inseason actions that are anticipated for the 2022-2023 management season include, but are not limited to, the following possibilities:

1. Adjustments in landing limits and days open for non-Indian commercial fisheries.
2. Changing the days or number of days of fishing allowed per calendar week for recreational fisheries.
3. Transfer of coho quotas among recreational port areas north of Cape Falcon.
4. Trading portions of Chinook and coho quotas between recreational and non-Indian commercial sectors north of Cape Falcon.
5. Routine openings and closings, and other management measures associated with quota management, including modifying open areas, bag and size limits, species retention limits, and mark-selective retention restrictions.
6. Transferring unused or exceeded quota to subsequent fisheries on an impact neutral, fishery equivalent basis.
7. Closing or postponing Oregon recreational and commercial fisheries scheduled to open March 15, 2023, if necessary to meet 2023 management objectives.
8. Closing or postponing California recreational fisheries scheduled to open April 2 or May 1, 2023, or commercial fisheries scheduled to open April 16 or May 1, 2023, if necessary to meet 2023 management objectives.
9. Closing or postponing commercial fisheries north of Cape Falcon scheduled to open May 1, 2023, if necessary to meet 2023 management objectives.

10. Adjustments to incidental Pacific halibut catch regulations in commercial fisheries, including landing and possession ratios and landing and possession limits per trip.

Inseason action will generally be accomplished through National Marine Fisheries Service (NMFS) sponsored conference calls attended by representatives of affected Tribal and state management agencies, the Council, the Salmon Advisory Subpanel (SAS), and the STT. The Council may also make recommendations for inseason actions at any of its regularly scheduled meetings.

## **2.2 State Waters Fisheries**

In addition to the seasons shown in Tables 1 and 2, the Oregon Department of Fish and Wildlife (ODFW) may permit fall fisheries for salmon in certain areas within state marine waters. Potential seasons off the Oregon coast typically include commercial and recreational fisheries at the mouths of the Chetco, Elk, and other rivers, although neither are likely for 2022. Washington may also establish limited recreational salmon fisheries in state marine waters if additional impacts on critical coho and/or Chinook stocks can be accommodated within management constraints. California will not establish any additional state marine water salmon fisheries in 2022.

## **3.0 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. adopting 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 ACLs, 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 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 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.

In addition to the allocation objectives associated with sharing between treaty Indian and non-Indian sectors, the Salmon FMP includes formulas for sharing Chinook and coho quotas. North of Cape Falcon, there are sharing formulas between commercial and recreational sectors, and among recreational port subareas; the recreational subarea sharing formula may be modified with the support of recreational port representatives. North of Falcon recreational subarea sharing was developed with the support of port area representatives, and all other sharing of Chinook and coho quotas adhered to FMP sharing formulas or other provisions of the FMP. Therefore, 2022 salmon management measures adopted by the Council meet all allocation requirements.

#### 4.0 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 ( <i>O. tshawytscha</i> )	Chinook					
	Sacramento River Winter	Endangered	81 FR 33468	5/26/2016	54 FR 32085	8/1/1989
	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 ( <i>O. keta</i> )	Chum					
	Hood Canal Summer-Run	Threatened	81 FR 33468	5/26/2016	64 FR 14508	3/25/1999
	Columbia River	Threatened	81 FR 33468	5/26/2016	64 FR 14508	3/25/1999
Coho ( <i>O. kisutch</i> )	Coho					
	Central California Coastal	Endangered	81 FR 33468	5/26/2016	61 FR 56138	10/31/1996
	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 ( <i>O. nerka</i> )	Sockeye					
	Snake River	Endangered	81 FR 33468	5/26/2016	56 FR 58619	11/20/1991
	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 (BiOps) that consider the impacts resulting from implementation of the Salmon FMP, or from annual management measures, to ESA-listed 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 BiOps in effect, the species they apply to, and their duration follows:

<b>Date BiOp or Memo Signed</b>	<b>Evolutionarily Significant Unit covered and effective period</b>
<b><u>Salmonid Species</u></b>	
3/8/1996	Snake River spring/summer and fall Chinook and sockeye (until reinitiated)
4/28/1999	Oregon Coastal natural coho, Central California coastal coho (until reinitiated)
4/28/2000	Central Valley spring Chinook (until reinitiated)
9/14/2002	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)
4/27/2012	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)
5/19/2021	Puget Sound Chinook and Puget Sound Steelhead (until reinitiated)
May 2022	California coastal Chinook (reinitiated in 2022; 7(a)(2) and 7(d) memo)
May 2022	Southern Oregon/ Northern California coastal coho (reinitiated in December 2021)
<b><u>Non-salmonid Species</u></b>	
4/30/2007	North American Green Sturgeon – Southern DPS (until reinitiated)
4/30/2011	Puget Sound/Georgia Basin Rockfish (until reinitiated)
4/30/2011	Pacific Eulachon – Southern DPS (until reinitiated)
4/21/2021	Southern Resident Killer Whales (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 NMFSs BiOps 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 ESUs, Council-managed fisheries have substantive impacts on Sacramento River winter Chinook (SRWC), Central Valley spring Chinook, California coastal Chinook (CCC), Snake River fall Chinook (natural component, referred to as Snake River Wild (SRW) in this document), 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:

<p><b><u>Chinook</u></b>  Snake River spring/summer (threatened)  Upper Willamette (threatened)  Puget Sound (threatened)  Upper Columbia River spring (endangered)</p> <p><b><u>Sockeye</u></b>  Snake River (endangered)  Ozette Lake Sockeye (threatened)</p> <p><b><u>Chum</u></b>  Columbia River (threatened)  Hood Canal summer (threatened)</p>	<p><b><u>Steelhead</u></b>  Southern California (endangered)  South-central California coast (threatened)  Upper Columbia River (endangered)  Middle Columbia River (threatened)  Snake River Basin (threatened)  Puget Sound (threatened)  Central Valley, California (threatened)  Central California coast (threatened)  Upper Willamette River (threatened)  Lower Columbia River (threatened)  Northern California (threatened)</p>
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## 5.0 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 Pacific Salmon Commission (PSC) is the body formed by the governments of Canada and the United States to implement the PST.

### 5.1 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 West Coast Vancouver Island (WCVI) aggregate abundance-based management (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 abundance indices (AIs) from the PSC Chinook Model for Northern British Columbia (NBC) 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 PST Agreement for specifics).

For the 2022 fishing season, the SEAK early winter power troll CPUE was 7.02, which corresponds to an all gear catch limit of 266,585 Chinook. The annual calibration of the PSC Chinook Model produced AIs of 1.17 for the NBC AABM fishery and 0.88 for the WCVI AABM fishery. These AIs correspond to catch limits of 142,800 and 100,700 Chinook for the NBC and WCVI AABM fisheries, respectively.

Fisheries not subject to AABM regimes, including Council area fisheries, are subject to a new set of individual stock-based management (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 considered 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 across 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 Fishery Regulation Assessment Model (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.

## **5.2 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:

<b>FMP</b>		
FMP Stock	Total Exploitation Rate Constraint <sup>a/</sup>	Categorical Status <sup>a/</sup>
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%	

<b>PST Southern Coho Management Plan</b>		
U.S. Management Unit	Total Exploitation Rate Constraint <sup>b/</sup>	Categorical Status <sup>c/</sup>
Skagit	60%	Abundant
Stillaguamish	50%	Abundant
Snohomish	40%	Moderate
Hood Canal	45%	Moderate
Strait of Juan de Fuca	20%	Low
Quillayute Fall <sup>c/</sup>	50%	Abundant
Hoh <sup>c/</sup>	58%	Abundant
Queets <sup>c/</sup>	68%	Abundant
Grays Harbor <sup>c/d/</sup>	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.

## **6.0 CHINOOK SALMON MANAGEMENT**

### **6.1 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 to the forecast of 73,100 in 2021. The SCH forecast is 91,200, which is higher than the 2021 forecast of 46,800.

#### **6.1.1 Objectives**

Key Chinook salmon management objectives shaping management measures north of Cape Falcon are:

- NMFS consultation standards and annual guidance for ESA listed species as provided in Section 4.0 above. Relevant ESUs (may be referred to as stocks in this document) for the area north of Cape Falcon include LCR Chinook (natural tule component and referred to as LCR natural tule fall Chinook in this document), Lower Columbia River fall Chinook (natural component and referred to LRW fall Chinook in this document), and SRW fall Chinook.
- Fisheries north of Cape Falcon were shaped to minimize impacts on the LCR natural tule fall Chinook ESU.

#### **6.1.2 Achievement of Objectives**

Fishery quotas under the adopted management measures are presented in Table 4. Stock-specific management criteria and their forecast values are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality estimates are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCR tule Chinook. Descriptions pertaining to the achievement of key objectives for Chinook salmon management north of Cape Falcon are as follows:

- *LCR natural tule fall Chinook*. The projected exploitation rate in the adopted management measures is 38.0 percent and meets the 38.0 percent maximum for 2022.
- *LRW fall Chinook*. The adopted management measures have a projected ocean escapement of 10,900 adults, which is projected to be sufficient to meet the ESA consultation standard of an adult spawning escapement of at least 5,700 in the North Fork Lewis River.
- *SRW fall Chinook*. The adopted management measures have an ocean exploitation rate that is 53.1 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.

The adopted management measures for Council-area Chinook fisheries north of Cape Falcon satisfy NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for relevant Chinook stocks (Table 5), except Hoko Fall Chinook spawning escapement is projected to be at a level below the FMP escapement goal.

The Hoko summer fall-run Chinook salmon stock is managed in Council area and in northern fisheries, subject to the provisions of the Council's Salmon FMP and the PST. Under the FMP, Hoko Chinook salmon are managed for a spawning escapement of 850 naturally spawning adults. The forecast of Hoko Chinook salmon in 2022 is for an escapement of 940 adult Chinook in the absence of fishing. With the

incorporation of Alaskan and Canadian fisheries that are expected to occur within the limits identified in the PST, the spawning escapement is projected to be at a level below the escapement goal. The Washington Department of Fish and Wildlife (WDFW) and the Washington treaty tribes support the Council-adopted management measures that result in a projected escapement for Hoko Chinook of 735 adult spawners. Section 3.3.6.2 of the FMP notes that “some de minimis level of fishing impacts are allowed by the provisions of the PST” at low abundance levels. For Chinook salmon, this is referring to the ISBM obligations under the PST, specifically the stock-specific exploitation rate limits when stocks are not meeting their management objectives (see Section 5.1). Under the provisions of the PST, Hoko Chinook salmon are managed to an exploitation rate limit of 10 percent in southern U.S. fisheries. As reported in Table 5, the model results project a southern U.S. exploitation rate on Hoko Chinook of 2.1 percent, of which 1.9 percent is occurring in Council area fisheries, well below the 10 percent PST limit. This represents a level of fishery impact in Council area fisheries that is below the levels defined as de minimis for other Chinook salmon stocks in the FMP (e.g., Klamath River fall-run Chinook salmon at 25 percent and Sacramento River winter-run Chinook salmon at 20 percent). Salmon fishery impacts on Hoko Chinook salmon associated with the fisheries adopted by the Council in 2022 are consistent with limits required by the PST and provisions of the Pacific Coast Salmon FMP.

## 6.2 South of Cape Falcon

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

- *LCR natural tule fall Chinook*. Combined production of LRH and 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.
- *SRFC*. The Sacramento Index forecast is 396,458, which is greater than the 2021 forecast of 270,958. SRFC were classified as overfished in 2018, and the Council adopted a rebuilding plan in 2019. In 2021, SRFC was reported to have met the criteria for rebuilt status.
- *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. KRFC were classified as overfished in 2018, and the Council adopted a rebuilding plan in 2019. In 2022, KRFC remain classified as overfished.
- *SRWC*. The forecast of age-3 escapement absent fishing is 5,971, which is less than the 2021 forecast of 9,063.

### 6.2.1 Objectives

Key Chinook salmon management objectives shaping management measures 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 fall 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, spotlight 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 does not currently meet 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.

The Council-adopted 2022 seasons 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).

### **6.2.2 Achievement of Objectives**

Fishery quotas under the adopted management measures are presented in Table 4. Stock-specific management criteria and their forecast values under the adopted management measures are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality estimates are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCR tule Chinook. Table 12 provides an assessment of stock status. Descriptions pertaining to the achievement of key objectives for Chinook salmon management south of Cape Falcon are found below.

- *KRFC*. The projected escapement is 38,180, which is equivalent to the 2022 control rule-defined minimum natural area adult spawners.
- *SRFC*. The adopted management measures have a projected escapement of 198,694, which exceeds the Council guidance for a minimum of 180,000 hatchery and natural area adult spawners.
- *SRWC*. The adopted management measures result in a projected age-3 impact rate of 15.2 percent, which is consistent with the ESA consultation standard that (1) limits the 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.
- *California coastal Chinook*. The adopted management measures result in a projected KRFC age-4 ocean harvest rate of 10.0 percent, which is consistent with the 2022 NMFS guidance to limit the forecast KRFC age-4 ocean harvest rate to a maximum of 10.0 percent.
- *SRW fall Chinook*. The adopted management measures have an ocean exploitation rate of 53.1 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.
- *LCR natural tule fall Chinook*. The projected exploitation rate in the adopted management measures is 38.0 percent and meets the 38.0 percent maximum for 2022.

The adopted management measures for Chinook fisheries south of Cape Falcon satisfy NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for relevant Chinook stocks (Table 5).

## 7.0 COHO SALMON MANAGEMENT

Abundance projections relevant to coho harvest management in Council area fisheries 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.
- *Oregon Coast coho (natural component, referred to as OCN coho).* The OCN forecast is 222,400 compared to the 2021 forecast of 125,000.
- *Lower Columbia coho (natural component, referred to as 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.

### 7.1 Objectives

Key coho management objectives shaping management measures in 2021 Council area fisheries are:

- NMFS consultation standards and annual guidance for ESA listed species as provided in Section 5.0 above. Relevant ESUs include Central California Coast coho (south of Punta Gorda, California), Southern Oregon/Northern California coast (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 5.2 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.
- Queets natural coho, Strait of Juan de Fuca natural coho, and Snohomish natural coho salmon stocks were classified as overfished in 2018, and the Council adopted rebuilding plans for these stocks in 2019. In 2020, Snohomish natural coho was reported to have met the criteria for not overfished-rebuilding. Queets natural coho and Strait of Juan de Fuca natural coho remain overfished. Coho fisheries, particularly north of Cape Falcon, were shaped to minimize impacts on these stocks and meet the objectives of the rebuilding plans. Objectives of the rebuilding plans for Queets natural

coho and Strait of Juan de Fuca natural coho are to manage the stock under status quo  $S_{msy}$ . For Snohomish natural coho the objective is to manage for an escapement goal of 55,000 adult natural spawners (10% greater than  $S_{msy}$ ).

## 7.2 Achievement of Objectives

Fishery quotas under the adopted management measures are presented in Table 4. Stock-specific management criteria and their forecast values are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCN, OCN, and SONCC coho populations. Table 8 provides expected coho mark rates for west coast fisheries by month. Table 12 provides an assessment of stock status, including expected spawning escapement and exploitation rates under the adopted management measures.

- *LCN coho.* The adopted management measures satisfy the maximum 23.0 percent exploitation rate for combined marine and mainstem Columbia River fisheries, with a marine exploitation rate of 13.8 percent and a mainstem Columbia River exploitation rate of 3.7 percent.
- *OCN coho.* The adopted management measures satisfy the maximum 15.0 percent exploitation rate for combined marine and freshwater fisheries, with a marine exploitation rate of 11.4 percent and a freshwater exploitation rate of 3.5 percent.
- *Washington coastal natural coho.* The adopted management measures provide ocean escapement numbers of 11,636, 3,922, 15,214, and 118,886 for Quillayute fall, Hoh, Queets, and Grays Harbor natural coho, respectively. These ocean escapement levels, when combined with scheduled in-river fisheries, meet FMP management objectives or objectives agreed to by the treaty tribes and Washington Department of Fish and Wildlife (WDFW) for those coho stocks. Expected exploitation rates are 37.4 percent, 53.6 percent, 36.3 percent, and 49.6 percent for Quillayute fall, Hoh, Queets, and Grays Harbor natural coho, respectively, which comply with the PST Southern Coho Management Plan (Section 5.2 and Table 12).
- *Interior Fraser coho.* The Southern U.S. exploitation rates in the adopted management measures total 9.5 percent, which complies with the 10.0 percent maximum required by the PST Southern Coho Management Plan.
- *Snohomish coho.* Currently meets the criteria for not overfished/rebuilding. The adopted management measures comply with the objective in the Rebuilding Plan.
- *Strait of Juan de Fuca coho.* Currently meets the criteria for overfished. The adopted management measures comply with the objective in the Rebuilding Plan.
- *Queets coho.* Currently meets the criteria for overfished. The adopted management measures comply with the objective in the Rebuilding Plan.
- *Hood Canal natural coho.* In the 2021 Review of Ocean Salmon Fisheries, Hood Canal natural coho was identified as meeting the criteria for overfished status, as the geometric mean for the three most recent years of spawning escapement (2018-2020) was 9,990, which is less than the MSST of 10,750. Since the publication of the 2021 Review of Ocean Salmon Fisheries (PFMC 2022a), new information has become available, including a 2021 spawning escapement estimate for Hood Canal natural coho of 33,299, which has been thoroughly reviewed and agreed to by the relevant Washington state and tribal co-managers. Based on this new information, the resulting most recent three-year geometric mean (2019-2021) is 16,410, which is above  $S_{msy}$  and the MSST, indicating that the Hood Canal natural coho stock does not meet the criteria for overfished status.

The adopted management measures for coho fisheries satisfy NMFS ESA consultation standards and guidance, FMP objectives, and all other objectives for relevant coho stocks including those listed in Table 5.

## **8.0 PINK SALMON MANAGEMENT**

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

## **9.0 IMPORTANT FEATURES OF THE ADOPTED MANAGEMENT MEASURES**

Significant changes from recent seasons are highlighted below, but this section is not intended to be a comprehensive description of the adopted management measures. For detailed information on the adopted ocean salmon seasons see Table 1 (non-Indian commercial), Table 2 (recreational), and Table 3 (Treaty Indian).

Adopted management measures in the area north of Cape Falcon were shaped to meet NMFS consultation standards, comply with Council-adopted rebuilding plans, and follow annual guidance for Chinook and coho stocks of concern. The 2022 Chinook total allowable catch (TAC) is slightly below 2021 due to lower abundances of Columbia River Chinook. The 2022 coho TAC is increased compared to last year due to higher abundance forecasts for coastal Washington coho stocks but was constrained by low forecasts for Thompson and Puget Sound natural coho.

Fisheries south of Cape Falcon are constrained by LCR natural tule Chinook, California coastal Chinook, and KRFC. The adopted management measures reflect NMFS guidance for California coastal Chinook to limit the projected KRFC age-4 ocean harvest rate to a maximum of 10 percent. KRFC are being managed under the *de minimis* portion of its harvest control rule, which in 2022 specifies a maximum allowable exploitation rate of 25.0 percent and a minimum escapement of 38,180 natural area adult spawners. Fisheries were also structured to meet Council guidance for a minimum SRFC escapement of 180,000 hatchery and natural-area adults.

### **9.1 Commercial**

North of Cape Falcon, the non-Indian troll Chinook quota is split two thirds in the spring (May-June) fishery and one third the summer fishery (July-September). The non-Indian commercial Chinook quota of 27,000 is decreased compared to the 30,750 Chinook quota in 2021. The non-Indian commercial coho quota of 32,000 is substantially increased relative to the 2021 quota of 5,000 coho.

The spring fishery in the area north of Cape Falcon will be open for all salmon except coho seven days per week May 1 through June 29. Chinook subarea guidelines and weekly (defined as Thursday through Wednesday) landing and possession limits of 80 Chinook are in effect in the area between the U.S./Canada border and the Queets River and in the area between Leadbetter Point and Cape Falcon. In 2023, the season is scheduled to open May 1 for all salmon except coho consistent with preseason regulations as described for this area and subareas for May 16-June 29, 2022.

The summer fishery in the area north of Cape Falcon will be open for all salmon seven days per week July 1 through September 30. A landing and possession limit of 150 marked coho per vessel per landing week is in effect coastwide, and all landed coho must be marked with a healed adipose fin clip.

The Oregon coast between Cape Falcon and the Heceta Bank line will be open for a portion of March through April. Chinook fisheries between Cape Falcon and the Heceta Bank line will be open portions of May through August. July and August include the retention of marked coho during the open days or attainment of quota. From the Heceta Bank line to Humbug Mountain, Chinook fisheries will be open for portions of May and August with marked coho retention in August open days or until quota is met. Chinook fisheries between Cape Falcon and Humbug Mountain will open again for a portion of September and all of October with weekly landing and possession limits in place.

For the Oregon portion of the Klamath Management Zone (KMZ), from Humbug Mountain to the Oregon/California border, the season will be open for a portion of March through April, followed by monthly quotas in June, July, and August. The summer quota fisheries have weekly landing and possession

limits. The California portion of the KMZ, from the Oregon/California border to Latitude 40°10' N, will be closed in 2022.

The Fort Bragg management area, from Latitude 40°10' N to Point Arena will be open for two five-day periods in July, and one opener in August for 10 days with a minimum size limit of 27 inches. The San Francisco management area, from Point Arena to Pigeon Point, will also be open for two short periods in July and one in August, plus the full month of September. The minimum size limit is 27 inches total length through August, then 26 inches thereafter. There will be a fall area target zone fishery between Point Reyes and Point San Pedro for two short openers in early October, open Monday through Friday.

The Monterey management area (south of Pigeon Point) will be open for three short periods in May, 12 days in early June, two five-day openings in July, and 10 days in early August under a 27 inch minimum size limit. The July and August fisheries will run concurrently with those in San Francisco and Fort Bragg.

## **9.2 Recreational**

North of Cape Falcon, the recreational Chinook quota of 27,000 is slightly decreased from the 2021 quota of 27,250 Chinook. The recreational coho quota of 168,000 is substantially increased relative to the 2021 quota of 70,000 coho. All landed coho must be marked with a healed adipose fin clip.

The Neah Bay and La Push subareas will open seven days per week for all salmon species June 18 through the earlier of September 30 or when Chinook subarea guidelines or coho subarea quotas are attained. The daily bag limit is two salmon in both subareas.

The Columbia River subarea will open June 25 and the Westport subarea will open July 2. Both subareas will open seven days per week for all salmon species through the earlier of September 30 or when Chinook subarea guidelines or coho subarea quotas are attained. The daily bag limit in both subareas is two salmon, no more than one of which may be a Chinook.

For the Oregon coast south of Cape Falcon to Humbug Mountain, the Chinook fishery opened March 15 and will run uninterrupted through October. Coho fisheries consist of a mark-selective coho quota from Cape Falcon to the Oregon/California Border beginning on June 18 and a non-mark-selective coho quota beginning on September 3 in the area from Cape Falcon to Humbug Mountain.

For the Oregon KMZ, the Chinook fishery will run from June 25 through August 21. In addition, this area will be open for mark-selective coho from June 18 to August 21 or attainment of quota. In the California KMZ, the season begins with open fisheries for the month of May. After a closure, the fishery will re-open on August 1 and remain open through Labor Day. The minimum size limit will be 24 inches in the Oregon KMZ and 20 inches in the California KMZ.

The Fort Bragg management area, from Latitude 40°10' N to Point Arena, will open on May 1 and run through the fourth of July. After a closure, the area will re-open on July 22 and remain open through Labor Day. The minimum size limit will be 20 inches.

The San Francisco management area, from Point Arena to Pigeon Point, opens on April 2 and runs continuously through the end of May. After a closure, the fishery will re-open on June 23 and run through the end of October. The minimum size limit will be 24 inches through May 15, and 20 inches thereafter.

South of Pigeon Point, the Monterey management area, the season will be open from April 2 through October 2. The minimum size limit will be 24 inches through May 15, and 20 inches thereafter.

## **9.3 Treaty Indian**

The Treaty Indian Troll Chinook quota is split evenly between the spring (May-June) fishery and the summer fishery (July-September). The Treaty Indian troll fishery opens on May 1 with a Chinook only fishery and runs through June 30 with a sub-quota of 20,000. The summer fishery opens on July 1 and runs through September 15 with a sub-quota of 20,000 Chinook and 52,000 coho. The Treaty Indian fishery

management areas are located between the U.S./Canada border and Pt. Chehalis, Washington (Table 3, C.1).

## **10.0 SOCIOECONOMIC IMPACTS OF THE ADOPTED MANAGEMENT MEASURES**

### **10.1 Economic Impacts**

The short-term economic effects of the Council-adopted management measures for non-Indian fisheries are shown in Tables 9 and 10. Table 9 shows projected commercial troll impacts by management area expressed in terms of estimated potential exvessel value. Table 10 shows projected recreational fishery impacts by management area in terms of the number of projected angler-trips and community personal income impacts generated by those activities. Note that exvessel revenue values shown 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 3 and 4, which show estimated community income impacts under the Council-adopted commercial troll and recreational fishery management measures, respectively, compared to historic levels in real (inflation-adjusted) dollars. Income impacts indicate the amount of income generated by the economic linkages associated with commercial and recreational fishing. While a reduction in income impacts associated with commercial or recreational fishing activity may not necessarily indicate a net loss for a community, it is likely to indicate losses to businesses and individuals in communities that depend on that activity for livelihood, depending on the availability of substitute activities. Unless otherwise noted, the economic effects of the commercial and recreational fisheries summarized below are compared in terms of estimated community income impacts.

Total economic effects may vary from what is indicated by the short-term impacts from ocean fisheries activities reported in Tables 9 and 10 and Figures 3 and 4. Salmon that remain unharvested in the ocean do not necessarily represent an economic loss, as they may augment inside harvest or provide additional spawning escapement that contributes to ocean abundance in subsequent years. Restricting ocean harvests may increase opportunities for inside harvesters (e.g., higher commercial revenue or more angler trips) or contribute to higher inside CPUE representing lower costs for commercial harvesters and/or higher success rates for recreational fishers. Salmon that remain unharvested by both ocean fisheries and inside fisheries may impact future production, although the magnitude and direction of this effect varies depending on the biology of the affected stocks, habitat, and environmental factors.

Exvessel revenues in Table 9 are based on estimated harvest by catch area, while commercial income impacts in Figure 3 are based on projected deliveries by landing area. Historically there has been a divergence between catch and deliveries (landings) associated with a particular area. The difference is due to salmon caught in certain management areas being delivered to ports in neighboring management areas. In an attempt to account for this effect and assign income impacts to the “correct” landing area, adjustments 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. Estimated total harvest 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 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, as compared to last 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 fisheries off central and southern Oregon as these fisheries are 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 adopted Alternative. Projections of recreational catch north of Cape Falcon were made by multiplying the proposed quotas for Chinook and coho by historic ratios of actual catch to 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 recreational catch. Unless otherwise noted, economic effects of the proposed commercial and recreational fisheries actions summarized below are compared in terms of estimated community income impacts.

## **10.2 Community Impacts**

Two types of impact are discussed in this section. "Income impacts" are the measures of economic activity as described in the previous section. "Impacts" of the action, from a NEPA perspective, are the change from a baseline. In this case, the baseline is the 2021 fishery, but information is also provided comparing projections to 2017-2021 averages. When referencing impacts of the action from a NEPA perspective, either a comparison to the baseline will be provided or the generic term "impacts" will be used. An overall summary of impacts from the action is provided in the following section.

Projected income impacts under the Proposed Action in coastal communities adjacent to commercial and recreational salmon fishery management areas are shown in Figure 3 and Figure 4, and comparisons of income impacts under the Proposed Action with income impacts under Alternatives I, II and III are summarized in Table 11. For an assessment of the impact of the action, comparisons to 2021 and 2017-2021 income impacts are provided. Projected coastwide income impacts from commercial salmon landings and processing under the Proposed Action are within the range analyzed under the Alternatives but will impact communities with an approximately 29 percent reduction in the estimated total coastwide commercial fisheries income impacts compared to last year (Figure 3 and Table 11). Regionally the picture is mixed, with income impacts from commercial salmon fisheries under the Proposed Action projected to be above last year's level in all three regions north of the Oregon/California border, but below last year's levels in all four regions south of the Oregon/California border. With respect to the 2017-2021 inflation-adjusted average, income impacts from commercial salmon fisheries under the Proposed Action are projected to be four percent lower overall coastwide, and below the 2017-2021 inflation-adjusted average in the two regions south of Point Arena, but above the 2017-2021 inflation-adjusted average in all five regions north of Point Arena (Figure 3 and Table 11).

Projected coastwide income impacts from expenditures by recreational salmon anglers under the Proposed Action are within the range analyzed under the Alternatives and overall will impact communities with about a 51 percent increase in the estimated total coastwide recreational fisheries income impacts compared to last year's activity (Table 11 and Figure 4). Regionally the picture is somewhat mixed, with recreational fisheries income impacts under the Proposed Action projected to be below last year's level in communities between Cape Falcon and Humbug Mountain, but above last year's level in all six other regions of the coast. Compared with the 2017-2021 inflation-adjusted average, coastwide recreational fisheries income impacts under the Proposed Action are projected to be 68 percent higher overall, and above the 2017-2021 inflation-adjusted average in all seven regions coastwide (Figure 4, and Tables 10 and 11).

### **10.3 Social Impacts**

The effect of the Proposed Action on other indicators of community social welfare (e.g., poverty, divorce rates, graduation/dropout rates, incidents of domestic violence, etc.) cannot be directly measured. Change in personal income in communities may be used as a rough proxy for other socioeconomic effects. However, changes in the broader regional economy ("cumulative effects") and long-term trends in fishery-related employment are more likely to drive these indicators of social wellbeing than the short-term economic effects of the Proposed Action.

To the extent practicable, social impacts were considered when tribal and non-tribal commercial and recreational salmon seasons were shaped. To minimize regulatory complexity in recreational fisheries, season dates and regulations were kept as consistent as possible within major management areas. Bag limits allow a greater number of fishers to participate in the fishery. Minimum size limits generally remain consistent throughout the season in most areas, which, in addition to biological benefits, tends to increase regulatory compliance. Where size limits do change in-season, the size limits decrease, such that anglers complying with earlier size limits will still be in compliance with the smaller size limits. Efforts were made to accommodate important cultural events such as the Memorial Day, Independence Day, and Labor Day holidays as well as traditional fishing derby events. Commercial fisheries often include vessel limits per trip or per open period to stretch quota attainment over a longer period of time. Doing so can provide greater access for smaller vessels, increase safety at sea by making it easier to avoid fishing in inclement weather, improve marketing opportunities, and extend the period during which consumers have access to fresh, wild caught salmon. Notification mechanisms by phone or email allow commercial vessels greater flexibility in choosing a port of landing to take advantage of better markets or to access better infrastructure.

Salmon are an important part of tribal culture and have been since time immemorial. Salmon provide economic, cultural, ceremonial, and subsistence benefits to west coast tribal communities. Under the Proposed Action, based on the adopted Chinook and coho quotas, Washington coastal treaty tribes are projected to have greater opportunities for Chinook and ocean coho opportunity compared with 2021 (Table 3 and Table 6). The Klamath River tribal share under the Proposed Action is 9,434 adult KRFC, a sixteen percent decrease from the 2021 allocation of 8,135 adult KRFC. Note that as with the non-tribal commercial and recreational salmon fisheries described in Section 10.1, restricting ocean salmon harvests may allow increased opportunities for inside harvest and escapement (and vice versa).

## **11.0 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION**

The Proposed Action, adoption of the 2022 ocean salmon management measures, was assessed relative to the environmental components and criteria established in Preseason Report II (Part 2 of this EA). The impacts of the Proposed Action on most target stocks and ESA-listed salmon fall within the range of impacts analyzed for the Alternatives in Preseason Report II. For stocks where the impacts of the Proposed Action may fall outside the range of impacts under the Alternatives in Preseason Report II, such impacts result from the shaping of fisheries that occur outside of the Council area, and are within the impact limitations



of the FMP, ESA consultation standards, and PST (Table 11). Economic impacts of the Proposed Action fall within the range of impacts projected for the Alternatives in Preseason Report II as summarized in Table 11.

Under No Action, the seasons would be the same as in 2021. Although not true for all regions, relative to No Action (as represented by the 2021 values) the Proposed Action would provide lower overall coastwide income impacts from commercial fishing but increased income impacts from recreational fishing (Table 11).

As stated in Preseason Report II (PFMC, 2022c), it was not possible to discern differences in the effects of the Alternatives or Proposed Action on other components of the environment (non-target fish species, marine mammals, other ESA-listed species, sea birds, biodiversity and ecosystem function, and public health and safety), and the effects were not expected to be significant under any of the Alternatives.

## **12.0 REFERENCES**

- 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 regulations. Pacific Fishery Management Council, Portland, Oregon.
- PFMC. 2022c. Preseason Report II: Proposed alternatives and environmental assessment part 2 for 2022 ocean salmon fishery regulations. Pacific Fishery Management Council, Portland, Oregon.

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

<b>A. SEASON DESCRIPTIONS</b>	
<b>North of Cape Falcon</b>	
<b>Supplemental Management Information</b>	
<p>1. Overall non-Indian TAC: 54,000 Chinook and 200,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Non-Indian commercial troll TAC: 27,000 Chinook and 32,000 marked coho.</p> <p>3. For fisheries scheduled prior to May 16, 2022: See 2021 management measures, which are subject to inseason action and the 2022 season description described below.</p>	
<i>Model run: Coho-2229, Chin-2522</i>	
<ul style="list-style-type: none"> <li>• May 1-15;</li> <li>• May 16 through the earlier of June 29, or 18,000 Chinook. No more than 6,040 of which may be caught in the area between the U.S./Canada border and the Queets River, and no more than 4,840 of which may be caught in the area between Leadbetter Pt. and Cape Falcon (C.8).</li> </ul> <p>Open seven days per week (C.1).</p> <p>In the area between the U.S./Canada border and the Queets River the landing and possession limit is 80 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6).</p> <p>In the area between Leadbetter Pt. and Cape Falcon the landing and possession limit is 80 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6).</p> <p>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).</p> <p>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.</p> <p>In 2023, the season will open May 1 consistent with all preseason regulations in place in this area and subareas during May 16-June 29, 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.</p>	
<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• July 1 through the earlier of September 30, or 9,000 Chinook or 32,000 coho (C.8).</li> </ul> <p>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 beginning August 1 (C.4, C.7). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).</p> <p>Landing and possession limit of 150 marked coho per vessel per landing week (Thurs.-Wed.) (C.1).</p> <p>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.</p>	
<p><b>For all commercial troll fisheries north of Cape Falcon:</b></p> <p>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).</p> <p>Vessels must land and deliver their salmon within 24 hours of any closure of this fishery.</p> <p>Vessels may not land fish east of the Sekiu River or east of the Megler-Astoria bridge.</p> <p>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. <b>During any single trip, only one side of the Leadbetter Point line may be fished</b> (C.11).</p> <p>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 north of Cape Falcon and being delivered by boat to Garibaldi must meet the minimum legal total length of 28 inches 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.).</p> <p><i>(Continued next page)</i></p>	

TABLE 1. 2022 Commercial troll management measures for non-Indian ocean salmon fisheries – Council adopted. (Page 2 of 9)

A. SEASON DESCRIPTIONS
North of Cape Falcon
<p><b>For all commercial troll fisheries north of Cape Falcon:</b> <i>(continued)</i></p> <p>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 <a href="mailto:nfalcon.trollreport@odfw.oregon.gov">nfalcon.trollreport@odfw.oregon.gov</a>. 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).</p> <p>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 <u>south 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. (C.11). Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8).</p>

TABLE 1. 2022 Commercial troll management measures for non-Indian ocean salmon fisheries – Council adopted. (Page 3 of 9)
<b>A. SEASON DESCRIPTIONS</b>
<b>South of Cape Falcon</b>
<b>Supplemental Management Information</b>
<ol style="list-style-type: none"> <li>1. Sacramento River fall Chinook spawning escapement of 198,694 hatchery and natural area adults.</li> <li>2. Sacramento Index exploitation rate of 49.9%.</li> <li>3. Klamath River recreational fishery allocation: 2,119 adult Klamath River fall Chinook.</li> <li>4. Klamath tribal allocation: 9,434 adult Klamath River fall Chinook.</li> <li>5. CA/OR share of Klamath River fall Chinook commercial ocean harvest: 65.5% / 34.5%.</li> <li>6. Overall commercial troll coho TAC: 10,000 coho marked with a healed adipose fin clip (marked).</li> <li>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.</li> <li>8. For fisheries scheduled prior to May 16, 2022, see 2021 management measures, which are subject to inseason action and the 2022 season description described below.</li> </ol>
<p><b>Cape Falcon to Heceta Bank line</b></p> <ul style="list-style-type: none"> <li>• March 15-May 15;</li> <li>• May 21-31;</li> <li>• June 1-12, 18-30;</li> <li>• July 5-9, 17-21, 25-31;</li> <li>• August 4-11;</li> <li>• September 1-4, 11-14;</li> <li>• October 1-31 (C.9.a).</li> </ul> <p>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.).</p> <ul style="list-style-type: none"> <li>• Mark-selective coho fishery open July 5-9, 17-21, 25-31, and August 4-11, or until a Cape Falcon to Humbug Mt. quota of 10,000 marked coho is met. 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.</li> </ul> <p>All salmon, all retained coho must be marked with a healed adipose fin clip (C.4, C.7). 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).</p> <p>Salmon trollers may take and retain or possess on board a fishing vessel no more than 30 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.</p> <p>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.</p>
<p><b>Heceta Bank Line to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>• May 1-15;</li> <li>• May 21-31;</li> <li>• August 4-11;</li> <li>• September 1-4, 11-14;</li> <li>• October 1-31 (C.9.a).</li> </ul> <p>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.).</p> <ul style="list-style-type: none"> <li>• Mark-selective coho fishery open August 4-11; or Cape Falcon to Humbug Mt. quota of 10,000 marked coho. 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.</li> </ul> <p>All salmon, all retained coho must be marked with a healed adipose fin clip (C.4, C.7). 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).</p> <p>Salmon trollers may take and retain or possess on board a fishing vessel no more than 30 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.</p> <p>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.</p>

TABLE 1. 2022 Commercial troll management measures for non-Indian ocean salmon fisheries – Council adopted. (Page 4 of 9)

A. SEASON DESCRIPTIONS
South of Cape Falcon
<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• March 15-April 30;</li> <li>• June 1-30, or the earlier of 800 Chinook quota;</li> <li>• July 1-31, or the earlier of 400 Chinook quota;</li> <li>• August 1-28, or the earlier of 250 Chinook quota (C.9.a).</li> </ul> <p>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.</p> <p>June 1-August 28 weekly landing and possession limit of 50 Chinook per vessel per week (Thurs.-Wed.).</p> <p>Any remaining portion of Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period (C.8.b).</p> <p>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.</p> <p>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 <a href="mailto:kmzor.trollreport@odfw.oregon.gov">kmzor.trollreport@odfw.oregon.gov</a>, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.</p> <p>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.</p>
<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• Closed.</li> </ul> <p>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 (B, C.1). 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.</p>
<p><b>Humboldt South Jetty to Latitude 40°10' N</b></p> <ul style="list-style-type: none"> <li>• Closed.</li> </ul> <p>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).</p>

TABLE 1. 2022 Commercial troll management measures for non-Indian ocean salmon fisheries – Council adopted. (Page 5 of 9)

A. SEASON DESCRIPTIONS
<p><b>Latitude 40°10' N. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• July 8-12, 21-25;</li> <li>• August 3-12, (C.9.b).</li> </ul> <p>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).</p> <p>All salmon must be landed in California and north of Point Arena (C.6, C.11).</p> <p>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.</p>
<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• July 8-12, 21-25;</li> <li>• August 3-12;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p> <p>All salmon must be landed in California (C.6).</p> <p>During September, all salmon must be landed south of Point Arena (C.6, C.11).</p> <p>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.</p> <p><b>Point Reyes to Point San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• October 3-7, 10-14.</li> </ul> <p>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).</p>
<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-5, 10-15, 20-24;</li> <li>• June 1-12;</li> <li>• July 8-12, 21-25;</li> <li>• August 3-12 (C.9.b).</li> </ul> <p>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). All salmon caught in this area in the month of May must be landed within 24 hours of any closure of the fishery (C.6). During the months of May and June, all salmon caught in this area must be landed south of Point Arena (C.11).</p> <p>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.</p> <p>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).</p>

TABLE 1. 2022 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 6 of 9)

**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	27	20.5	-	-	27
Pt. Arena to Pigeon Pt. September-October	26	19.5	-	-	26
Pigeon Pt. to U.S./Mexico Border	27	20.5	-	-	27

**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:

- Salmon may be taken only by hook and line using single point, single shank, barbless hooks.
- Cape Falcon, Oregon, to the OR/CA border: No more than 4 spreads are allowed per line.
- 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 90° angle.

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

- 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.
- 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. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)**

**C.5. Control Zone Definitions:**

- a. *Cape Flattery Control Zone* - The area from Cape Flattery (48°23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48°10'00" N. lat.) and east of 125°05'00" 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.;	44°41.68' N. lat., 124°15.38' W. long.;	43°17.96' N. lat., 124°28.81' W. long.;
45°44.34' N. lat., 124°05.09' W. long.;	44°34.87' N. lat., 124°15.80' W. long.;	43°16.75' N. lat., 124°28.42' W. long.;
45°40.64' N. lat., 124°04.90' W. long.;	44°33.74' N. lat., 124°14.44' W. long.;	43°13.97' N. lat., 124°31.99' W. long.;
45°33.00' N. lat., 124°04.46' W. long.;	44°27.66' N. lat., 124°16.99' W. long.;	43°13.72' N. lat., 124°33.25' W. long.;
45°32.27' N. lat., 124°04.74' W. long.;	44°19.13' N. lat., 124°19.22' W. long.;	43°12.26' N. lat., 124°34.16' W. long.;
45°29.26' N. lat., 124°04.22' W. long.;	44°15.35' N. lat., 124°17.38' W. long.;	43°10.96' N. lat., 124°32.33' W. long.;
45°20.25' N. lat., 124°04.67' W. long.;	44°14.38' N. lat., 124°17.78' W. long.;	43°05.65' N. lat., 124°31.52' W. long.;
45°19.99' N. lat., 124°04.62' W. long.;	44°12.80' N. lat., 124°17.18' W. long.;	42°59.66' N. lat., 124°32.58' W. long.;
45°17.50' N. lat., 124°04.91' W. long.;	44°09.23' N. lat., 124°15.96' W. long.;	42°54.97' N. lat., 124°36.99' W. long.;
45°11.29' N. lat., 124°05.20' W. long.;	44°08.38' N. lat., 124°16.79' W. long.;	42°53.81' N. lat., 124°38.57' W. long.;
45°05.80' N. lat., 124°05.40' W. long.;	44°08.30' N. lat., 124°16.75' W. long.;	42°50.00' N. lat., 124°39.68' W. long.;
45°05.08' N. lat., 124°05.93' W. long.;	44°01.18' N. lat., 124°15.42' W. long.;	42°49.13' N. lat., 124°39.70' W. long.;
45°03.83' N. lat., 124°06.47' W. long.;	43°51.61' N. lat., 124°14.68' W. long.;	42°46.47' N. lat., 124°38.89' W. long.;
45°01.70' N. lat., 124°06.53' W. long.;	43°42.66' N. lat., 124°15.46' W. long.;	42°45.74' N. lat., 124°38.86' W. long.;
44°58.75' N. lat., 124°07.14' W. long.;	43°40.49' N. lat., 124°15.74' W. long.;	42°44.79' N. lat., 124°37.96' W. long.;
44°51.28' N. lat., 124°10.21' W. long.;	43°38.77' N. lat., 124°15.64' W. long.;	42°45.01' N. lat., 124°36.39' W. long.;
44°49.49' N. lat., 124°10.90' W. long.;	43°34.52' N. lat., 124°16.73' W. long.;	42°44.14' N. lat., 124°35.17' W. long.;
44°44.96' N. lat., 124°14.39' W. long.;	43°28.82' N. lat., 124°19.52' W. long.;	42°42.14' N. lat., 124°32.82' W. long.;
44°43.44' N. lat., 124°14.78' W. long.;	43°23.91' N. lat., 124°24.28' W. long.;	42°40.50' N. lat., 124°31.98' W. long.;
44°42.26' N. lat., 124°13.81' W. long.;	43°20.83' N. lat., 124°26.63' W. long.;	

- 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. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)**

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

- a. 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.
- b. Through May 15, 2022, consistent with regulations adopted in April 2021, license holders may land no more than 1 Pacific halibut per each 2 Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than 35 halibut may be landed per trip.
- c. 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, 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).
- d. 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.
- e. "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 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.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. The Council will consider inseason recommendations for special regulations for any experimental fisheries annually in March; proposals must meet Council protocol and be received in November the year prior.
- 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.

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

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. Majority of information from source: 2021 West Coast federal salmon regulations.

<https://www.fisheries.noaa.gov/action/fisheries-west-coast-states-west-coast-salmon-fisheries-2021-management-measures>

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.	40°10' line (near Cape Mendocino, CA)	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.
South end Heceta Bank line, OR	43°58'00" N lat.	Point San Pedro, CA	37°35'40" N lat.
Humbug Mountain, OR	42°40'30" N lat.	Pigeon Point, CA	37°11'00" N lat.
Oregon-California border	42°00'00" N lat.	Point Sur, CA	36°18'00" N lat.
		Point Conception, CA	34°27'00" N lat.

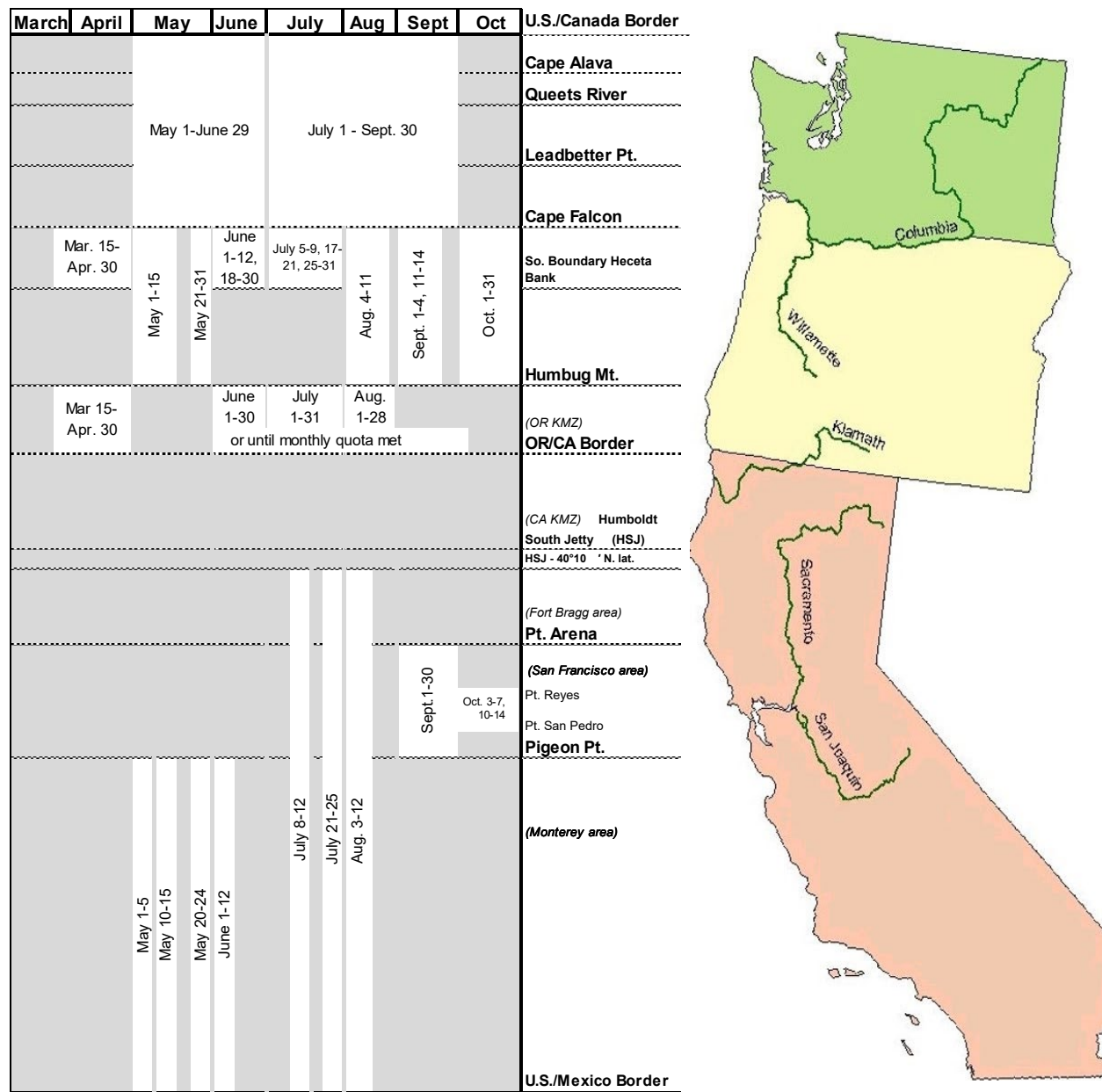


FIGURE 1. 2022 non-Indian commercial salmon seasons – Council adopted.

TABLE 2. 2022 Recreational management measures for non-Indian ocean salmon fisheries - Council adopted. (Page 1 of 5)

A. SEASON DESCRIPTIONS
North of Cape Falcon
Supplemental Management Information
<p>1. Overall non-Indian TAC: 54,000 Chinook and 200,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Recreational TAC: 27,000 Chinook and 168,000 marked coho; all retained coho must be marked.</p> <p>3. Buoy 10 fishery opens August 1 with an expected landed catch of 55,000 marked coho in August and September.</p>
<p><b>U.S./Canada Border to Cape Alava (Neah Bay Subarea)</b></p> <ul style="list-style-type: none"> <li>June 18 through earlier of September 30, or 17,470 marked coho subarea quota, with a subarea guideline of 6,110 Chinook (C.5).</li> </ul> <p>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). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <p>Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery.</p> <p>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).</p>
<p><b>Cape Alava to Queets River (La Push Subarea)</b></p> <ul style="list-style-type: none"> <li>June 18 through earlier of September 30, or 4,370 marked coho subarea quota, with a subarea guideline of 995 Chinook (C.5).</li> </ul> <p>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). See gear restrictions and definitions (C.2, C.3). Chinook minimum size limit of 24 inches total length (B).</p> <p>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).</p> <ul style="list-style-type: none"> <li>October 5 through earlier of October 8, or 125 Chinook quota (C.5) in the area north of 47°50'00" N. lat. and south of 48°00'00" N. lat.</li> </ul> <p>Open seven days per week. Chinook only, 2 Chinook per day. See gear restrictions and definitions (C.2, C.3). Chinook minimum size limit of 24 inches total length (B, C.1).</p>
<p><b>Queets River to Leadbetter Point (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>July 2 through earlier of September 30, or 62,160 marked coho subarea quota, with a subarea guideline of 12,070 Chinook (C.5).</li> </ul> <p>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). See gear restrictions and definitions (C.2, C.3). Chinook minimum size limit of 22 inches total length (B).</p> <p>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).</p>
<p><b>Leadbetter Point to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>June 25 through earlier of September 30, or 84,000 marked coho subarea quota, with a subarea guideline of 7,700 Chinook (C.5).</li> </ul> <p>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). See gear restrictions and definitions (C.2, C.3). Chinook minimum size limit of 22 inches total length (B).</p> <p>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).</p>

TABLE 2. 2022 Recreational management measures for non-Indian ocean salmon fisheries – Council adopted. (Page 2 of 5)
<b>South of Cape Falcon</b>
<b>Supplemental Management Information</b>
<ol style="list-style-type: none"> <li>1. Sacramento River fall Chinook spawning escapement of 198,694 hatchery and natural area adults.</li> <li>2. Sacramento Index exploitation rate of 49.9%.</li> <li>3. Klamath River recreational fishery allocation: 2,119 adult Klamath River fall Chinook.</li> <li>4. Klamath tribal allocation: 9,434 adult Klamath River fall Chinook.</li> <li>5. Overall recreational coho TAC: 100,000 coho marked with a healed adipose fin clip (marked), and 17,000 coho in the non-mark-selective coho fishery.</li> <li>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.</li> <li>7. For fisheries scheduled prior to May 16, 2022, see 2021 management measures, which are subject to inseason action and the 2022 season description described below.</li> </ol>
<b>A. SEASON DESCRIPTIONS</b>
<b>South of Cape Falcon</b>
<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>• March 15-May 15;</li> <li>• May 16-October 31 (C.6).</li> </ul> <p>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).</p> <p>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.</p>
<p><b>Cape Falcon to OR/CA Border.</b></p> <p>All-salmon mark-selective coho fishery:</p> <ul style="list-style-type: none"> <li>• June 18 through the earlier of August 21, or 100,000 marked coho quota (C.6).</li> </ul> <p>Open seven days per week. Cape Falcon to Humbug Mt.: All salmon two salmon per day. Humbug Mt. to OR/CA Border: June 18-24, all salmon except Chinook, two salmon per day; and June 25-August 21 or coho quota, all salmon, two salmon per day. All retained coho must be marked with a healed adipose fin clip. See minimum size limits (B). See gear restrictions and definitions (C.2, C.3).</p> <p>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).</p>
<p><b>Cape Falcon to Humbug Mt.</b></p> <p>Non-mark-selective coho fishery:</p> <ul style="list-style-type: none"> <li>• September 3 through the earlier of September 30, or 17,000 non-mark-selective coho quota (C.6). Open days may be modified inseason.</li> </ul> <p>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).</p>
<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• June 25-August 21 (C.6).</li> </ul> <p>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).</p>
<p><b>For Recreational Fisheries from Cape Falcon to Humbug Mt.:</b> 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).</p>

TABLE 2. 2022 Recreational management measures for non-Indian ocean salmon fisheries – Council adopted. (Page 3 of 5)

A. SEASON DESCRIPTIONS
<p><b>OR/CA Border to latitude 40°10' N. (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• May 1-May 15;</li> <li>• May 16-31;</li> <li>• August 1-September 5 (C.6).</li> </ul> <p>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).</p> <p>Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Eel, and Klamath Rivers.</p> <p>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.</p>
<p><b>Latitude 40°10' N. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• May 1-15;</li> <li>• May 16-July 4;</li> <li>• July 22-September 5 (C.6).</li> </ul> <p>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).</p> <p>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.</p>
<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• April 2-May 15 (C.6).</li> </ul> <p>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).</p> <ul style="list-style-type: none"> <li>• May 16-31;</li> <li>• June 23-October 31 (C.6).</li> </ul> <p>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).</p> <p>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.</p>
<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• April 2-May 15 (C.6).</li> </ul> <p>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).</p> <ul style="list-style-type: none"> <li>• May 16-October 2 (C.6).</li> </ul> <p>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).</p> <p>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.</p> <p>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).</p>

TABLE 2. 2022 Recreational management measures for non-Indian ocean salmon fisheries – Council adopted. (Page 4 of 5)

<b>B. MINIMUM SIZE (Inches) (See C.1)</b>			
Area (when open)	Chinook	Coho	Pink
North of Cape Falcon (Westport and Columbia River)	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	20	-	20
Pt. Arena to Pigeon Pt. through May 15	24	-	24
Pt. Arena to Pigeon Pt. beginning May 16	20	-	20
Pigeon Pt. to U.S./Mexico Border through May 15	24	-	24
Pigeon Pt. to U.S./Mexico Border beginning May 16	20	-	20

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

**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 offshore); 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.



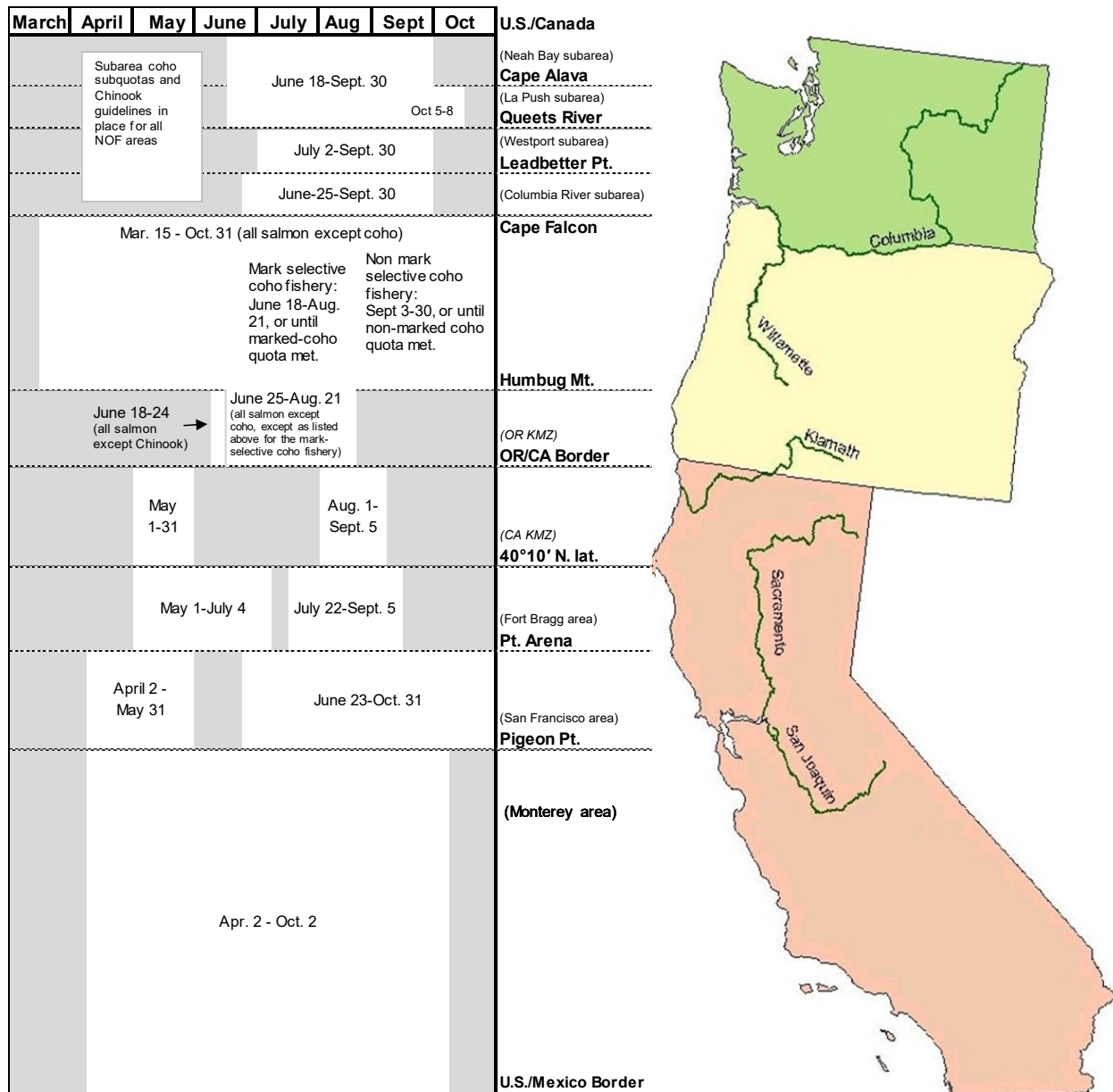


FIGURE 2. 2022 recreational salmon seasons – Council adopted.

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

A. SEASON ALTERNATIVE DESCRIPTIONS	
Supplemental Management Information	
<p>1. Overall Treaty-Indian TAC: 40,000 Chinook and 52,000 coho.</p> <p>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.</p> <p>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.</p>	
<ul style="list-style-type: none"> <li>May 1 through the earlier of June 30 or 20,000 Chinook quota.</li> </ul> <p>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).</p> <ul style="list-style-type: none"> <li>July 1 through the earlier of September 15, or 20,000 Chinook quota or 52,000 coho quota</li> </ul> <p>All salmon. See size limit (B) and other restrictions (C).</p>	

**B. MINIMUM LENGTH (TOTAL INCHES)**

Area (when open)	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
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

- Single point, single shank, barbless hooks are required in all fisheries.
- No more than eight fixed lines per boat.
- 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

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

TABLE 3. 2022 Treaty Indian ocean troll management measures for ocean salmon fisheries - Council adopted. (Page 2 of 2)

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. Chinook and coho harvest quotas and guidelines for 2022 ocean salmon fishery management measures - Council adopted.

Fishery or Quota Designation	Chinook	Coho
<b>NORTH OF CAPE FALCON</b>		
TREATY INDIAN OCEAN TROLL <sup>a/</sup>		
U.S./Canada Border to Cape Falcon (All Except Coho)	20,000	-
U.S./Canada Border to Cape Falcon (All Species)	20,000	52,000
Subtotal Treaty Indian Ocean Troll	40,000	52,000
NON-INDIAN COMMERCIAL TROLL <sup>b/</sup>		
U.S./Canada Border to Cape Falcon (All Species Except Coho)	18,000	-
U.S./Canada Border to Cape Falcon (All Species)	9,000	32,000
Subtotal Non-Indian Commercial Troll	27,000	32,000
RECREATIONAL		
U.S./Canada Border to Cape Alava <sup>b/</sup>	6,110	17,470
Cape Alava to Queets River <sup>b/</sup>	1,120	4,370
Queets River to Leadbetter Pt. <sup>b/</sup>	12,070	62,160
Leadbetter Pt. to Cape Falcon <sup>b/c/</sup>	7,700	84,000
Subtotal Recreational	27,000	168,000
TOTAL NORTH OF CAPE FALCON	94,000	252,000
<b>SOUTH OF CAPE FALCON</b>		
COMMERCIAL TROLL <sup>b/</sup>		
Cape Falcon to Humbug Mt.	-	10,000
Humbug Mt. to OR/CA Border	1,450	
OR/CA Border to Humboldt South Jetty	-	-
Subtotal Troll	1,450	10,000
RECREATIONAL		
Cape Falcon to OR/CA Border <sup>d/e</sup>	-	117,000 <sup>d/</sup>
TOTAL SOUTH OF CAPE FALCON	1,450	127,000

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 of 29,800 Chinook and 55,000 marked coho.

d/ The quota consists of both mark-selective and non-mark-selective quotas of 100,000 and 17,000, respectively.

e/ The non-mark-selective fishery is only open from Cape Falcon to Humbug Mt.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2022 ocean salmon fishery management measures - Council adopted.<sup>a/</sup> (Page 1 of 5)

Key Stock/Criteria	2022		Spaw ner Objective or Other Comparative Standard as Noted <sup>b/</sup>
	Projected	Criteria	
<b>CHINOOK</b>	<b>CHINOOK</b>		<b>CHINOOK</b>
<u>SRKW PREY ABUNDANCE:</u>			
North of Falcon	1,372.9	≥ 966.0	Oct 1 starting abundance of age 3+ Chinook from U.S./Canada Border to Cape Falcon
Oregon Coast	1,080.6	NA	Oct 1 starting abundance of age 3+ Chinook from Cape Falcon to Horse Mt.
California Coast	515.8	NA	Oct 1 starting abundance of age 3+ Chinook south of Horse Mt.
Southw est WCVI	715.6	NA	Oct 1 starting abundance of age 3+ Chinook off Southw est Vancouver Island
Salish Sea	706.7	NA	Oct 1 starting abundance of age 3+ Chinook in the Salish Sea
<u>PUGET SOUND:</u>			
Elw ha Summer/Fall	4.5%	≤ 10.0%	Southern U.S. exploitation rate (NMFS ESA consultation standard).
Dungeness Spring	4.4%	≤ 10.0%	Southern U.S. exploitation rate (NMFS ESA consultation standard).
Mid-Hood Canal Summer/Fall	15.2%	≤ 15.2%	Preterminal Southern U.S. exploitation rate. Discussions betw een betw een WA state and tribal co-managers resulted in a conservation standard for 2022 fisheries consistent w ith NMFS guidance.
Skokomish Summer/Fall	50.0%	≤ 50.0%	Total exploitation rate (NMFS ESA consultation standard).
Nooksack Spring	10.7%	≤ 10.9%	Southern U.S. exploitation rate (NMFS ESA consultation standard).
	0.95	≤ 1.00	ISBM obligation applicable, as this stock lacks a CTC agreed escapement goal. Compliance assessed postseason by the PSC.
Skagit Summer/Fall	41.2%	≤ 41.2%	Total exploitation rate (NMFS ESA consultation standard).
	--	≤ 0.95	ISBM obligation not applicable, escapement goal expected to be met. Compliance assessed postseason by the PSC.
Skagit Spring	21.7%	≤ 36.0%	Total exploitation rate (NMFS ESA consultation standard).
	--	≤ 0.95	ISBM obligation not applicable, escapement goal expected to be met. Compliance assessed postseason by the PSC.
Stillaguamish Summer/Fall	8.9%	≤ 9.0%	Southern U.S. exploitation rate (NMFS ESA consultation standard).
	0.62	≤ 1.00	ISBM obligation applicable, as this stock lacks a CTC agreed escapement goal. Compliance assessed postseason by the PSC.
Snohomish Summer/Fall	6.8%	≤ 8.3%	Southern U.S. exploitation rate limit under critical abundance forecast for 2022 (NMFS ESA consultation standard).
	0.69	≤ 1.00	ISBM obligation applicable, as this stock lacks a CTC agreed escapement goal. Compliance assessed postseason by the PSC.
Lake Washington Summer/Fall	0.714	≥ 0.500	Natural spaw ning escapement in the Cedar River (NMFS ESA consultation standard).
Green River Summer/Fall	3.865	≥ 2.744	Natural spaw ning escapement in the Green River (NMFS ESA consultation standard).
White River Spring	17.0%	≤ 22.0%	Southern U.S. exploitation rate (NMFS ESA consultation standard).
Puyallup Summer/Fall	2.439	>1.170	Natural spaw ning escapement in the Puyallup River (NMFS ESA consultation standard). The resulting NOR spaw ning escapement, planned using this standard are consistent w ith NMFS guidance for 2022 fisheries.
Nisqually River Summer/Fall	47.5%	≤ 47.0%	Total exploitation rate, (NMFS ESA consultation standard). Up to an additional 2% ER may be added to facilitate inriver selective gear studies after meeting base criteria during final preseason modeling.
Puget Sound Spring	2.0%	≤ 3.0%	Exploitation rate in PFMC fisheries (NMFS ESA consultation standard).
Puget Sound Summer/Fall	5.5%	≤ 6.0%	Exploitation rate in PFMC fisheries (NMFS ESA consultation standard).

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2022 ocean fishery management measures - Council adopted.<sup>a/</sup> (Page 2 of 5)

Key Stock/Criteria	Projected	2022 Criteria	Spaw ner Objective or Other Comparative Standard as Noted <sup>b/</sup>
<b>CHINOOK</b>	<b>CHINOOK</b>		<b>CHINOOK</b>
<u>WASHINGTON COAST:</u>			
Hoko Fall	<b>0.735</b>	0.85 FMP MSY spaw ning escapement objective.	
	2.1%	≤ 10.0% Calendar year exploitation rate ISBM obligation. Compliance assessed postseason by the PSC.	
Quillayute Fall	>3.0	3.0 FMP MSY spaw ning escapement objective.	
	--	≤ 0.85 ISBM obligation not applicable, escapement goal expected to be met. Compliance assessed postseason by the PSC.	
Hoh Fall	>1.2	1.2 FMP MSY spaw ning escapement objective.	
	--	≤ 0.85 ISBM obligation not applicable, escapement goal expected to be met. Compliance assessed postseason by the PSC.	
Queets Fall	>2.5	2.5 FMP MSY spaw ning escapement objective.	
	--	≤ 0.85 ISBM obligation not applicable, escapement goal expected to be met. Compliance assessed postseason by the PSC.	
Grays Harbor Fall	>13.3	13.3 FMP MSY spaw ning escapement objective.	
	--	≤ 0.85 ISBM obligation not applicable, escapement goal expected to be met. Compliance assessed postseason by the PSC.	
<u>COLUMBIA RIVER:</u>			
Columbia Upriver Brights	229.6	74.0 Minimum ocean escapement to attain 40.0 adults over McNary Dam, w ith normal distribution and no mainstem harvest. The management goal has been increased to 60.0 by Columbia River managers.	
Mid-Columbia Brights	78.6	14.9 Minimum ocean escapement to attain 7.9 for Little White Salmon egg-take, assuming average conversion and no mainstem harvest.	
Columbia Low er River Hatchery Tules	73.6	25.0 Minimum ocean escapement to attain 14.8 adults for hatchery egg-take, w ith average conversion and no low er river mainstem or tributary harvest.	
Columbia Low er River Natural Tules (threatened)	38.0%	≤ 38.0% Total adult equivalent fishery exploitation rate (2022 NMFS ESA guidance).	
Columbia Low er River Wild <sup>e/</sup> (threatened)	10.9	6.9 Minimum ocean escapement to attain MSY spaw ner goal of 5.7 for N. Lew is River fall Chinook (NMFS ESA consultation standard).	
Spring Creek Hatchery Tules	92.2	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	56.3	29.0 Aggregate escapement to mouth of Columbia River.	
Snake River Fall (threatened) SRFI	53.1%	≤ 70.0% Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).	

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2022 ocean fishery management measures - Council adopted.<sup>a/</sup> (Page 3 of 5)

Key Stock/Criteria	Projected	2022 Criteria	Spaw ner Objective or Other Comparative Standard as Noted <sup>b/</sup>
<b>CHINOOK</b>	<b>CHINOOK</b>		<b>CHINOOK</b>
<u>OREGON COAST:</u>			
Nehalem Fall	--	≤ 0.85	ISBM obligation not applicable, escapement goal expected to be met. Compliance assessed postseason by the PSC.
Siletz Fall	--	≤ 0.85	ISBM obligation not applicable, escapement goal expected to be met. Compliance assessed postseason by the PSC.
Siuslaw Fall	--	≤ 0.85	ISBM obligation applicable, escapement goal not expected to be met. Compliance assessed postseason by the PSC.
South Umpqua	--	≤ 0.85	ISBM obligation applicable, as this stock lacks a CTC agreed escapement goal. Compliance assessed postseason by the PSC.
Coquille	--	≤ 0.85	ISBM obligation applicable, as this stock lacks a CTC agreed escapement goal. Compliance assessed postseason by the PSC.
<u>CALIFORNIA:</u>			
Klamath River Fall	38.180	≥ 38.180	2022 minimum natural area adult escapement (FMP control rule).
Federally recognized tribal harvest	50.0%	50.0%	Equals 9.4 (thousand) adult fish for Yurok and Hoopa Valley tribal fisheries.
Exploitation (spaw ner reduction) rate	25.0%	≤ 25.0%	FMP control rule.
Adult river mouth return	66.8	NA	Total adults in thousands.
Age-4 ocean harvest rate	10.0%	≤ 10.0%	NMFS guidance.
KMZ sport fishery share	6.8%		
River recreational fishery share	22.5%	NA	Equals 2.1 thousand adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	15.2%	≤ 20.0%	Age-3 ocean impact rate in fisheries south of Pt. Arena. In addition, the following season restrictions apply: <u>Recreational</u> - 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. <u>Commercial</u> - 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	198,694	≥ 180,000	2022 minimum hatchery and natural area adult escapement (Council Guidance).
Sacramento Index Exploitation Rate	49.9%	≤ 69.2%	FMP control rule.
Ocean commercial impacts	91.9		Includes fall (Sept-Dec) 2021 impacts (5.7 thousand SRFC).
Ocean recreational impacts	73.5		Includes fall (Sept-Dec) 2021 impacts (3.3 thousand SRFC).
River recreational impacts	32.3		Equals 16.4% of the total harvest.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2022 ocean fishery management measures - Council adopted.<sup>a/</sup> (Page 4 of 5)

Key Stock/Criteria	Projected	2022 Criteria	Spaw ner Objective or Other Comparative Standard as Noted <sup>b/</sup>
COHO	COHO		COHO
Interior Fraser (Thompson River)	9.5%(4.8%)	≤ 10.0%	2022 Southern U.S. exploitation rate ceiling; PSC coho agreement.
Skagit	43.2%(4.5%)	≤ 60.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Stillaguamish	35.9%(3.2%)	≤ 50.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Snohomish	33.5%(3.2%)	≤ 40.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Hood Canal	44.1%(4.9%)	≤ 45.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Strait of Juan de Fuca	10.9%(3.9%)	≤ 20.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Quillayute Fall	11.6	6.3	FMP MSY adult spaw ner estimate. Value depicted is ocean escapement.
	37.4%	≤ 50%	PST total exploitation rate constraint for 2022. <sup>d/f/</sup>
Hoh	3.9	2.0	FMP MSY adult spaw ner estimate. Value depicted is ocean escapement.
	53.6%	≤ 58%	PST total exploitation rate constraint for 2022. <sup>d/f/</sup>
Queets Wild	15.2	5.8	FMP MSY adult spaw ner estimate. Value depicted is ocean escapement.
	36.3%	≤ 65%	FMP total exploitation rate constraint (MFMT). <sup>d/f/</sup>
Grays Harbor	118.9	35.4	FMP MSP natural area adult spaw ner estimate. Value depicted is ocean escapement.
	49.6%	≤ 65%	FMP total exploitation rate constraint (MFMT). <sup>d/f/</sup>
Willapa Bay	43.3	17.2	FMP MSY natural area adult spaw ner estimate. Value depicted is ocean escapement.
Low er Columbia River Natural (threatened)	17.5%	≤23.0%	Total marine and mainstem Columbia R. fishery exploitation rate (2022 NMFS ESA guidance).
Upper Columbia <sup>c/</sup>	63.3%	≥ 50%	Minimum percentage of the run to Bonneville Dam.
Columbia River Hatchery Early	379.2	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	241.1	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	15.0%	≤ 15.0%	Marine and freshw ater fishery exploitation rate (NMFS ESA consultation standard).
Southern Oregon/Northern California Coast (threatened)			
Trinity Natural	13.5%	≤ 16.0%	total exploitation rate ceiling. (2022 NMFS ESA Guidance)
Klamath Natural	8.7%	≤ 15.0%	total exploitation rate ceiling. (2022 NMFS ESA Guidance)
Rogue Natural	7.8%	≤ 15.0%	total exploitation rate ceiling. (2022 NMFS ESA Guidance)
Other Natural	2.9%	≤ 15.0%	total exploitation rate ceiling. (2022 NMFS ESA Guidance)



TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2022 ocean fishery management measures - Council adopted.<sup>a/</sup> (Page 5 of 5)

a/ Reflects 2022 fisheries and abundance estimates.

b/ ISBM obligation is assessed as a proportion of the 2009-2015 average calendar year exploitation rate. 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. Exploitation rates for LCN coho, OCN coho, SONCC coho, and LCR Tule Chinook represent marine and freshwater impacts. Values reported for Klamath River fall Chinook, Grays Harbor coho, and Willapa Bay coho 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 measures - Council adopted. (Page 1 of 2)

Area and Fishery	Catch Projection	Bycatch Mortality <sup>a/</sup> Projection	Bycatch Projection <sup>b/</sup>	Observed in 2021	
				Catch	Bycatch Mortality
<b><u>OCEAN FISHERIES:</u></b>					
<b>CHINOOK (thousands of fish)</b>					
NORTH OF CAPE FALCON					
Treaty Indian Ocean Troll	40.0	4.1	10.2	8.2	0.8
Non-Indian Commercial Troll	27.0	11.6	41.5	19.3	7.8
Recreational	27.0	3.3	15.1	17.8	2.2
CAPE FALCON TO HUMBUG MT. <sup>c/</sup>					
Commercial Troll	45.7	10.6	30.3	16.9	4.9
Recreational	11.9	1.3	4.8	5.5	0.6
HUMBUG MT. TO OR/CA BORDER					
Commercial Troll	1.5	0.3	1.0	0.4	0.1
Recreational	1.6	0.2	0.9	0.9	0.4 <sup>d/</sup>
OR/CA BORDER TO 40°10' N. LAT.					
Commercial Troll	-	-	-	-	-
Recreational	2.2	0.2	0.9	0.6	0.3 <sup>d/</sup>
40°10' N. LAT. TO PT. ARENA					
Commercial Troll	22.1	5.1	14.6	43.7	17.0 <sup>d/</sup>
Recreational	8.3	0.9	3.3	3.7	0.4 <sup>d/</sup>
PT. ARENA TO PIGEON PT.					
Commercial Troll	24.5	5.7	16.2	104.9	21.5 <sup>d/</sup>
Recreational	53.8	6.1	19.9	34.0	3.9 <sup>d/</sup>
SOUTH OF PIGEON PT.					
Commercial Troll	37.8	8.7	25.1	52.8	8.7 <sup>d/</sup>
Recreational	20.7	2.4	7.7	17.0	1.8 <sup>d/</sup>
TOTAL OCEAN FISHERIES					
Commercial Troll	198.5	46.0	138.8	246.3	60.9
Recreational	125.4	14.5	52.6	79.5	9.4
<b><u>INSIDE FISHERIES:</u></b>					
Area 4B	-	-	-	-	-
Buoy 10	29.8	16.8	3.2	20.8	3.0 <sup>d/</sup>

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

Area and Fishery	Catch Projection	Bycatch Mortality <sup>a/</sup> Projection	Bycatch Projection <sup>b/</sup>	Observed in 2021	
				Catch	Bycatch Mortality
<b>OCEAN FISHERIES:</b>					
<b>COHO (thousands of fish)</b>					
<b>NORTH OF CAPE FALCON</b>					
Treaty Indian Ocean Troll <sup>e/</sup>	52.0	3.4	5.6	26.4	1.3
Non-Indian Commercial Troll	32.0	12.8	40.6	3.5	2.0
Recreational	168.0	30.7	131.7	64.2	15.6
<b>SOUTH OF CAPE FALCON</b>					
Commercial Troll	10.0	10.1	36.0	2.1	3.2
Recreational <sup>e/</sup>	117.0	27.1	127.6	79.0	24.1
<b>TOTAL OCEAN FISHERIES</b>					
Commercial Troll	94.0	26.3	82.2	32.0	6.5
Recreational	285.0	57.8	259.4	143.2	39.7
<b>INSIDE FISHERIES:</b>					
<b>Area 4B</b>					
	-	-	-	-	-
Buoy 10	55.0	10.6	46.1	37.0	6.8

<sup>d/</sup>

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 measures 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)

Fishery	Exploitation Rate (Percent)		
	LCN Coho	OCN Coho	LCR Tule Chinook
SOUTHEAST ALASKA	0.0%	0.0%	2.9%
BRITISH COLUMBIA	0.1%	0.3%	13.0%
PUGET SOUND/STRAIT	0.2%	0.0%	0.3%
NORTH OF CAPE FALCON			
Treaty Indian Ocean Troll	2.1%	0.5%	2.2%
Recreational	5.0%	0.9%	3.0%
Non-Indian Troll	1.6%	0.3%	4.1%
SOUTH OF CAPE FALCON			
Recreational:			0.6%
Cape Falcon to Humbug Mt.	3.7%	7.6%	-
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.2%	-
OR/CA border to Latitude 40°10' N. (KMZ)	0.0%	0.2%	-
Fort Bragg	0.0%	0.2%	-
South of Pt. Arena	0.0%	0.1%	-
Troll:			2.1%
Cape Falcon to Humbug Mt.	0.8%	0.9%	-
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.0%	-
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	-
Fort Bragg	0.0%	0.1%	-
South of Pt. Arena	0.0%	0.1%	-
BUOY 10	2.0%	0.1%	9.8%
ESTUARY/FRESHWATER	1.8%	3.4%	
TOTAL <sup>ai</sup>	17.5%	15.0%	38.0%

TABLE 7. Expected coastwide exploitation rates by fishery for 2022 ocean fisheries management measures for lower Columbia Natural (LCN) coho, Oregon coastal natural (OCN) coho, 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).

Fishery	Exploitation Rate (Percent)			
	Trinity Natural	Klamath Natural	Rogue Natural	Other SONCC
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%
BRITISH COLUMBIA	0.1%	0.1%	0.1%	0.1%
PUGET SOUND/STRAIT	0.0%	0.0%	0.0%	0.0%
NORTH OF CAPE FALCON				
Treaty Indian Ocean Troll	0.0%	0.0%	0.0%	0.0%
Recreational	0.1%	0.1%	0.1%	0.1%
Non-Indian Troll	0.0%	0.0%	0.0%	0.0%
SOUTH OF CAPE FALCON				
Recreational:				
Cape Falcon to Humbug Mt.	0.5%	0.5%	0.5%	0.5%
Humbug Mt. to OR/CA border (KMZ)	0.3%	0.3%	0.3%	0.3%
OR/CA border to Latitude 40°10' N. (KMZ)	0.7%	0.7%	0.7%	0.7%
Fort Bragg	0.4%	0.4%	0.4%	0.4%
South of Pt. Arena	0.2%	0.2%	0.2%	0.2%
Troll:				
Cape Falcon to Humbug Mt.	0.1%	0.1%	0.1%	0.1%
Humbug Mt. to OR/CA border (KMZ)	0.1%	0.1%	0.1%	0.1%
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.0%	0.0%
Fort Bragg	0.2%	0.2%	0.2%	0.2%
South of Pt. Arena	0.1%	0.1%	0.1%	0.1%
BUOY 10	0.0%	0.0%	0.0%	0.0%
ESTUARY/FRESHWATER	10.6%	5.8%	4.9%	0.0%
<b>TOTAL <sup>a/</sup></b>	<b>13.5%</b>	<b>8.7%</b>	<b>7.8%</b>	<b>2.9%</b>

a/ Estuary/freshwater catch is included in the total for LCN, OCN, SONCC, and LCR Tule Chinook populations. Bolded values identify exploitation rates that would exceed the total allowable exploitation rate.

TABLE 8. 2022 projected coho mark rates for mark-selective fisheries under Council adopted management measures (percent marked).

Area	Fishery	June	July	August	September
Canada					
Johnstone Strait	Recreational	29%	26%	21%	--
West Coast Vancouver Island	Recreational	60%	50%	44%	47%
North Georgia Strait	Recreational	40%	40%	38%	31%
South Georgia Strait	Recreational	41%	46%	42%	39%
Juan de Fuca Strait	Recreational	46%	44%	45%	38%
Johnstone Strait	Troll	--	--	--	--
NW Vancouver Island	Troll	42%	51%	50%	34%
SW Vancouver Island	Troll	52%	46%	45%	--
Georgia Strait	Troll	--	--	--	--
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	--	51%	48%	45%
Strait of Juan de Fuca (Area 6)	Recreational	--	49%	50%	43%
San Juan Island (Area 7)	Recreational	--	52%	44%	29%
North Puget Sound (Areas 6 & 7A)	Net	--	--	47%	44%
Council Area					
Neah Bay (Area 4/4B)	Recreational	44%	56%	50%	52%
LaPush (Area 3)	Recreational	57%	61%	63%	50%
Westport (Area 2)	Recreational	--	68%	63%	55%
Columbia River (Area 1)	Recreational	73%	74%	65%	64%
Tillamook	Recreational	67%	60%	53%	45%
Newport	Recreational	61%	56%	51%	32%
Coos Bay	Recreational	53%	47%	34%	38%
Brookings	Recreational	48%	34%	29%	--
Neah Bay (Area 4/4B)	Troll	--	53%	52%	49%
LaPush (Area 3)	Troll	--	56%	52%	49%
Westport (Area 2)	Troll	--	62%	61%	58%
Columbia River (Area 1)	Troll	--	70%	65%	52%
Tillamook	Troll	--	59%	57%	--
Newport	Troll	--	57%	49%	--
Coos Bay	Troll	--	--	39%	--
Brookings	Troll	--	--	--	--
Columbia River					
Buoy 10	Recreational	--	--	--	62%

TABLE 9. Preliminary projected exvessel value by catch area under Council-adopted 2022 non-Indian commercial troll management measures compared with 2021 and the 2017-2021 average (inflation-adjusted 2021 dollars).

Management Area	Exvessel Value (thousands of dollars) <sup>a/</sup>				
	2022 Projected <sup>b/</sup>	2021	2017-2021 Average	Percent Change	
				From 2021 (Modeled)	From 2017-2021 Average
North of Cape Falcon	3,536	2,019	2,234	+75%	+58%
Cape Falcon to Humbug Mt.	5,590	1,993	1,893	+180%	+195%
Humbug Mt. to OR/CA Border (OR KMZ)	200	56	166	+257%	+21%
OR/CA Border to 40°10' N. Lat. (CA KMZ)	0	0	218	-	-100%
40°10' N. Lat. to Pt. Arena (Fort Bragg)	1,680	3,264	1,039	-49%	+62%
Pt. Arena to Pigeon Pt. (SF)	2,312	9,718	8,024	-76%	-71%
South of Pigeon Pt. (MO)	4,178	5,722	3,931	-27%	+6%
Total South of Cape Falcon	13,960	20,753	15,271	-33%	-9%
West Coast Total	17,496	22,772	17,505	-23%	-0%

a/ All dollar amounts are inflation-adjusted 2021 values. Exvessel value estimates are not comparable to the community income impacts shown in Table 10.

b/ 2022 projections are based on expected catches in the Council management areas, 2021 exvessel prices and 2021 average weights per fish.

TABLE 10. Preliminary projected angler trips and associated state-level personal income impacts under Council-adopted 2022 recreational ocean salmon management measures compared with 2021 and the 2017-2021 average (inflation-adjusted 2021 dollars).

Management Area	Coastal Community Income Impacts <sup>a/</sup>							
	Angler Trips (thousands)			(thousands of dollars) <sup>b/</sup>			Percent Change in Income Impacts	
	2022 Projected	2021	2017-2021 Avg.	2022 Projected	2021	2017-2021 Avg.	Compared to 2021	Compared to 2017-2021 Avg.
North of Cape Falcon	148.5	62.8	59.3	23,101	9,777	8,762	+136%	+164%
Cape Falcon to Humbug Mt.	66.1	79.9	56.7	5,479	6,624	4,414	-17%	+24%
Humbug Mt. to OR/CA Border (OR KMZ)	6.9	5.9	5.1	482	410	335	+17%	+44%
OR/CA Border to 40°10' N. Lat. (CA KMZ)	10.3	2.2	4.5	1,374	298	555	+360%	+148%
40°10' N. Lat. to Pt. Arena (Fort Bragg)	12.4	8.6	7.2	2,033	1,413	1,186	+44%	+71%
Pt. Arena to Pigeon Pt. (SF)	58.9	45.4	53.7	15,353	11,838	13,514	+30%	+14%
South of Pigeon Pt. (MO)	34.3	31.9	19.1	5,169	4,807	2,720	+8%	+90%
Total South of Cape Falcon	188.8	173.9	146.2	29,889	25,390	22,724	+18%	+32%
West Coast Total	337.3	236.8	205.5	52,990	35,167	31,486	+51%	+68%

a/ Income impacts are not comparable to exvessel values shown in Table 9.

b/ Dollar amounts are in inflation-adjusted 2021 values.

TABLE 11. Environmental effects of the Proposed Action relative to criteria and Alternatives analyzed in Preseason Reports I and II.<sup>a/</sup> (Page 1 of 2)

Environmental Component		No-Action Alternative <sup>b/</sup>	Alternative			Proposed Action	2022	
			I	II	III		Criteria	Objective or Other Comparative Standard as Noted
<b>Chinook</b>								
KRFC	Spawning Escapement	<b>33.829</b>	38.180	38.180	38.180	38.180	≥ 38.180	2022 minimum natural area adult escapement (FMP control rule).
	Exploitation (spawner reduction) rate	<b>33.5%</b>	25.0%	25.0%	25.0%	25.0%	≤ 25.0%	FMP control rule.
SRFC	Spawning Escapement	189.235	199.881	202.639	197.756	198.694	≥ 180.000	2022 minimum hatchery and natural area adult escapement (Council Guidance).
	Exploitation Rate	52.3%	49.6%	48.9%	50.1%	49.9%	≤ 69.2%	FMP control rule.
<b>Canadian Stocks</b>								
Interior Fraser Coho		6.0%(2.6%)	9.7%(6.2%)	8.8%(5.3%)	7.8%(4.3%)	9.5%(4.8%)	≤ 10.0%	2022 Southern U.S. exploitation rate ceiling; PSC coho agreement.
<b>Puget Sound Coho</b>								
Skagit		33.3%	33.4%(5.8%)	32.7%(4.9%)	32.0%(4.1%)	43.2%(4.5%)	≤ 60.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Stillaguamish		32.9%	33.2%(4.2%)	32.7%(3.5%)	32.3%(2.9%)	35.9%(3.2%)	≤ 50.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Snohomish		33.0%	33.3%(4.2%)	32.8%(3.5%)	32.3%(2.9%)	33.5%(3.2%)	≤ 40.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Hood Canal		44.6%	44.7%(6.2%)	44.1%(5.3%)	43.5%(4.3%)	44.1%(4.9%)	≤ 45.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Strait of Juan de Fuca		9.1%	10.6%(5.1%)	9.8%(4.3%)	9.1%(3.6%)	10.9%(3.9%)	≤ 20.0%	2022 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
<b>Washington Coastal Coho</b> (in thousands of fish)								
Quillayute Fall Coho		12.0	11.5	11.6	11.8	11.6	6.3	FMP MSY adult spawner estimate. Value depicted is ocean escapement.
			17.7%	16.9%	16.0%	37.4%	≤ 50%	PST total exploitation rate constraint for 2022. <sup>d/</sup>
Hoh Coho		4.0	3.8	3.9	4.0	3.9	2.0	FMP MSY adult spawner estimate. Value depicted is ocean escapement.
			31.7%	30.0%	27.9%	53.6%	≤ 58%	PST total exploitation rate constraint for 2022. <sup>d/</sup>
Queets Wild Coho		15.7	15.0	15.3	15.7	15.2	5.8	FMP MSY adult spawner estimate. Value depicted is ocean escapement.
			24.7%	23.2%	21.3%	36.3%	≤ 65%	FMP total exploitation rate constraint (MFMT). <sup>d/</sup>
Grays Harbor Coho		122.5	118.0	119.1	120.5	118.9	35.4	FMP MSP natural area adult spawner estimate. Value depicted is ocean escapement.
			29.0%	28.3%	27.4%	49.6%	≤ 65%	FMP total exploitation rate constraint (MFMT). <sup>d/</sup>
Willapa Bay Natural Coho		32.9	43.2	43.6	44.5	43.3	17.2	FMP MSY natural area adult spawner estimate. Value depicted is ocean escapement.
<b>ESA-Listed Salmon</b>								
California Coastal Chinook		<b>16.5%</b>	10.0%	10.0%	9.9%	10.0%	≤ 10.0%	KRFC age-4 ocean harvest rate. (NMFS Guidance)
SRWC		14.6%	14.9%	12.5%	14.0%	15.2%	≤ 20.0%	SRWC age-3 ocean impact rate in fisheries south of Pt. Arena.
LCR Natural Tule Chinook <sup>d/</sup>		NA	<b>40.3%</b>	<b>38.8%</b>	38.0%	38.0%	≤ 38.0%	Total adult equivalent fishery exploitation rate (2022 NMFS ESA guidance).
LCN Coho <sup>d/</sup>		13.5%	14.2%	12.9%	11.1%	17.5%	≤ 23.0%	Total marine and mainstem Columbia R. fishery ER (2022 NMFS ESA guidance).
OCN coho <sup>d/</sup>		13.9%	14.4%	13.8%	14.9%	15.0%	≤ 15.0%	Marine and freshwater fishery exploitation rate (NMFS ESA consultation standard).
SONCC coho								
Trinity Natural			14.1%	14.0%	13.7%	13.5%	≤ 16.0%	total exploitation rate ceiling
Klamath Natural			8.7%	8.6%	8.3%	8.7%	≤ 15.0%	total exploitation rate ceiling
Rogue Natural			7.8%	7.7%	7.4%	7.8%	≤ 15.0%	total exploitation rate ceiling
Other Natural			2.9%	2.8%	2.5%	2.9%	≤ 15.0%	total exploitation rate ceiling



TABLE 11. Environmental effects of the Proposed Action relative to criteria and Alternatives analyzed in Preseason Reports I and II.<sup>a/</sup> (Page 2 of 2)

Environmental Component	No-Action	Alternative			Proposed Action
	Alternative <sup>b/</sup>	I	II	III	
<b>Socioeconomics</b>					
Commercial Community Personal Income Impacts (thousands of dollars)					
North of Cape Falcon	3,536	7,282	6,659	5,857	6,232
Cape Falcon to Humbug Mt.	3,286	9,532	7,214	8,238	9,244
Humbug to OR/CA border (OR KMZ)	250	441	275	570	425
OR/CA border to 40°10' N. Lat. (CA KMZ)	493	415	229	142	398
40°10' N. Lat. to Pt. Arena (Fort Bragg)	5,556	2,641	1,114	405	2,519
Pt. Arena to Pigeon Pt. (San Francisco)	23,726	7,342	10,048	11,329	7,451
South of Pigeon Pt. (Monterey)	3,818	2,623	3,110	3,412	2,730
West Coast Total	40,666	30,276	28,649	29,953	29,000
Recreational Community Personal Income Impacts (thousands of dollars)					
North of Cape Falcon	9,777	28,401	25,176	21,837	23,101
Cape Falcon to Humbug Mt.	6,624	5,479	5,189	3,505	5,479
Humbug to OR/CA border (OR KMZ)	410	161	433	259	482
OR/CA border to 40°10' N. Lat. (CA KMZ)	298	1,350	1,447	577	1,374
40°10' N. Lat. to Pt. Arena (Fort Bragg)	1,413	2,116	2,139	2,726	2,033
Pt. Arena to Pigeon Pt. (San Francisco)	11,838	14,672	13,574	13,118	15,353
South of Pigeon Pt. (Monterey)	4,807	5,168	5,156	5,141	5,169
West Coast Total	35,167	57,348	53,114	47,164	52,990

a/ Impacts assumed when Alternatives were adopted in March may have changed due to updated information from the PSC, North of Falcon process, or other sources.

b/ Socioeconomic impacts under the No-Action Alternative are assumed equal to 2021 estimates.

c/ 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. Values in parentheses indicate impacts in Council-area fisheries.

d/ Includes projected impacts of inriver fisheries.

TABLE 12. Stock status relative to overfished and overfishing criteria. A stock is approaching an overfished condition if the 3-year geometric mean of the most recent two years and the forecasted spawning escapement is less than the minimum stock size threshold (MSST); a stock would experience overfishing if the total annual exploitation rate exceeds the maximum fishing mortality threshold (MFMT). Occurrences of stocks approaching an overfished condition, or experiencing overfishing, are indicated in bold. 2022 spawning escapement and exploitation rate estimates are based on 2022 preseason abundance forecasts and 2022 adopted Council regulations.

	Estimated Adult Spawning Escapement										Total Exploitation Rate						
	2017	2018	2019	2020	2021 <sup>a/</sup>	Forecast 2022 <sup>b/</sup>	3-yr Geo Mean	MSST	S <sub>MSY</sub>		2017	2018	2019	2020	2021 <sup>a/</sup>	2022 <sup>b/</sup>	MFMT
<b>Chinook</b>																	
Sacramento Fall	44,329	105,466	163,767	138,091	104,483	198,694	142,058	91,500	122,000		0.68	0.52	0.68	0.61	0.68	0.50	0.78
Klamath River Fall	19,904	52,352	20,022	26,190	30,196	38,180	31,139	30,525	40,700		0.10	0.32	0.43	0.30	0.38	0.25	0.71
Southern Oregon <sup>c/</sup>	91,977	39,497	19,426	30,497	48,870	NA	30,706	20,500	34,992	NA	NA	NA	NA	NA	NA	NA	0.54
Central and Northern OR <sup>d/</sup>	114	92	65	137	85	NA	91	30 fish/mi	60 fish/mi	0.45	0.66	0.50	NA	NA	NA	NA	0.78
Upper Columbia Bright - Fall <sup>d/</sup>	96,096	58,540	77,880	98,401	86,644	71,978	84,979	19,182	39,625	0.49	0.34	0.37	NA	NA	NA	NA	0.86
Upper Columbia - Summer <sup>d/</sup>	56,265	38,816	41,090	70,654	52,076	56,345	59,185	6,072	12,143	0.46	0.54	0.26	NA	NA	NA	NA	0.75
Willapa Bay - Fall <sup>e/</sup>	3,147	2,847	2,894	3,585	NA	NA	3,091	1,696	3,393	0.51	0.61	0.73	NA	NA	NA	NA	0.78
Grays Harbor Fall <sup>e/</sup>	17,145	20,741	14,880	20,879	NA	NA	18,609	5,694	13,326	0.48	0.63	0.72	NA	NA	NA	NA	0.78
Grays Harbor Spring	1,384	493	983	2,828	2,573	NA	1,927	700	1,400	NA	NA	NA	NA	NA	NA	NA	0.78
Queets - Fall <sup>d/</sup>	2,822	2,207	2,663	3,459	NA	NA	2,729	1,250	2,500	0.55	0.66	0.64	NA	NA	NA	NA	0.87
Queets - Sp/Su	825	484	322	342	NA	NA	376	350	700	NA	NA	NA	NA	NA	NA	NA	0.78
Hoh - Fall <sup>e/</sup>	1,808	2,478	1,552	2,273	NA	NA	2,060	600	1,200	0.51	0.56	0.79	NA	NA	NA	NA	0.90
Hoh Sp/Su	1,364	793	766	1,248	NA	NA	912	450	900	NA	NA	NA	NA	NA	NA	NA	0.78
Quillayute - Fall <sup>e/</sup>	3,604	3,937	7,765	8,672	3,873	NA	6,389	1,500	3,000	0.69	0.72	0.73	NA	NA	NA	NA	0.87
Quillayute - Sp/Su	1,097	990	1,442	935	748	NA	1,003	600	1,200	NA	NA	NA	NA	NA	NA	NA	0.78
Hoko -Su/Fa <sup>d/</sup>	1,188	2,179	1,815	2,122	NA	NA	2,032	425	850	0.26	0.54	0.77	NA	NA	NA	NA	0.78
<b>Coho</b>																	
Willapa Bay <sup>f/</sup>	11,379	17,228	15,115	16,476	NA	24,418	18,253	8,600	17,200	0.34	0.35	0.39	0.33	NA	0.53	0.74	
Grays Harbor <sup>f/</sup>	26,907	49,622	30,468	23,814	NA	65,626	36,245	18,320	24,426	0.32	0.22	0.39	0.29	NA	0.50	0.65	
Queets	5,232	2,631	1,700	4,181	NA	11,673	4,362	4,350	5,800	0.23	0.23	0.57	0.22	NA	0.36	0.65	
Hoh	4,478	2,463	2,445	2,840	NA	2,187	2,476	1,890	2,520	0.43	0.34	0.57	0.49	NA	0.54	0.65	
Quillayute Fall	7,474	6,091	6,852	7,695	8,321	7,842	7,948	4,725	6,300	0.42	0.30	0.37	0.16	NA	0.37	0.59	
Juan de Fuca	5,530	5,470	4,625	8,548	NA	6,519	<b>6,364</b>	7,000	11,000	0.05	0.08	0.12	0.07	NA	0.11	0.60	
Hood Canal	23,871	7,512	7,884	16,832	33,299	11,350	18,529	10,750	14,350	0.35	0.57	0.46	0.29	NA	0.44	0.65	
Skagit	20,184	19,047	14,246	23,808	NA	45,869	24,964	14,875	25,000	0.09	0.49	0.48	0.43	NA	0.43	0.60	
Stillaguamish	6,099	23,937	12,887	21,555	NA	16,017	16,447	6,100	10,000	0.12	0.22	0.20	0.13	NA	0.36	0.50	
Snohomish	18,195	58,135	40,314	42,675	NA	42,871	41,937	31,000	50,000	0.21	0.25	0.17	0.11	NA	0.34	0.60	

a/ Preliminary.

b/ Preliminary approximations based on preseason forecasts and Council adopted (preseason) fishing regulations.

c/ MSST 18,440 (20,500 as measured at Huntley Park).

d/ Preliminary CWT-based exploitation rates from PSC-CTC 2021 Exploitation Rate Analysis.

e/ Queets River fall Chinook coded-wire-tag (CWT) exploitation rates used as a proxy. Adjustments made to terminal fishery impacts to account for differential harvest rates.

f/ Escapement and exploitation rate estimates based on natural area adult spawners.

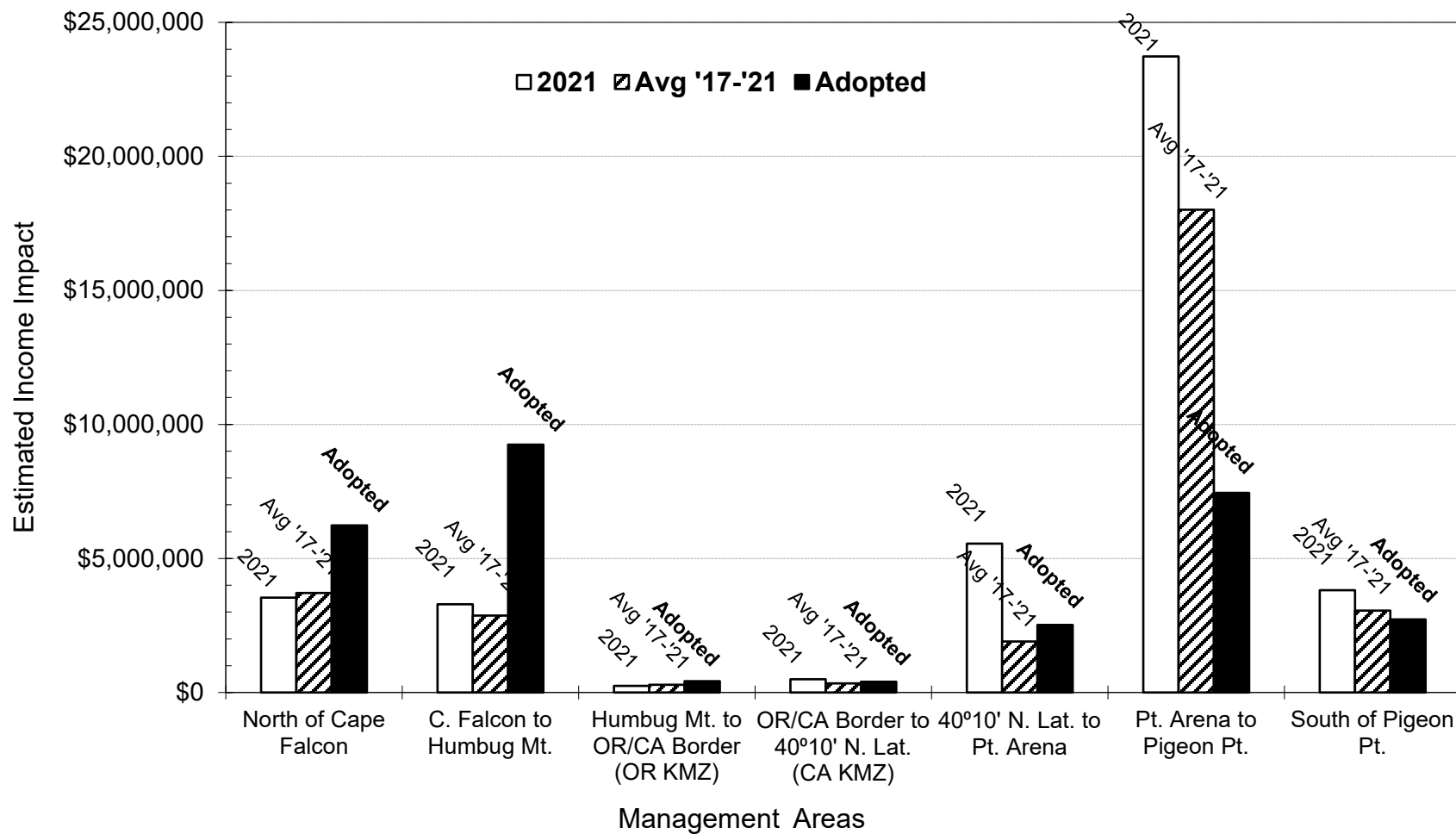


FIGURE 3. Projected coastal community personal income impacts associated with the 2022 commercial troll fishery under Council-adopted management measures compared to estimated 2021 and the 2017-2021 inflation-adjusted average (in 2021 dollars).

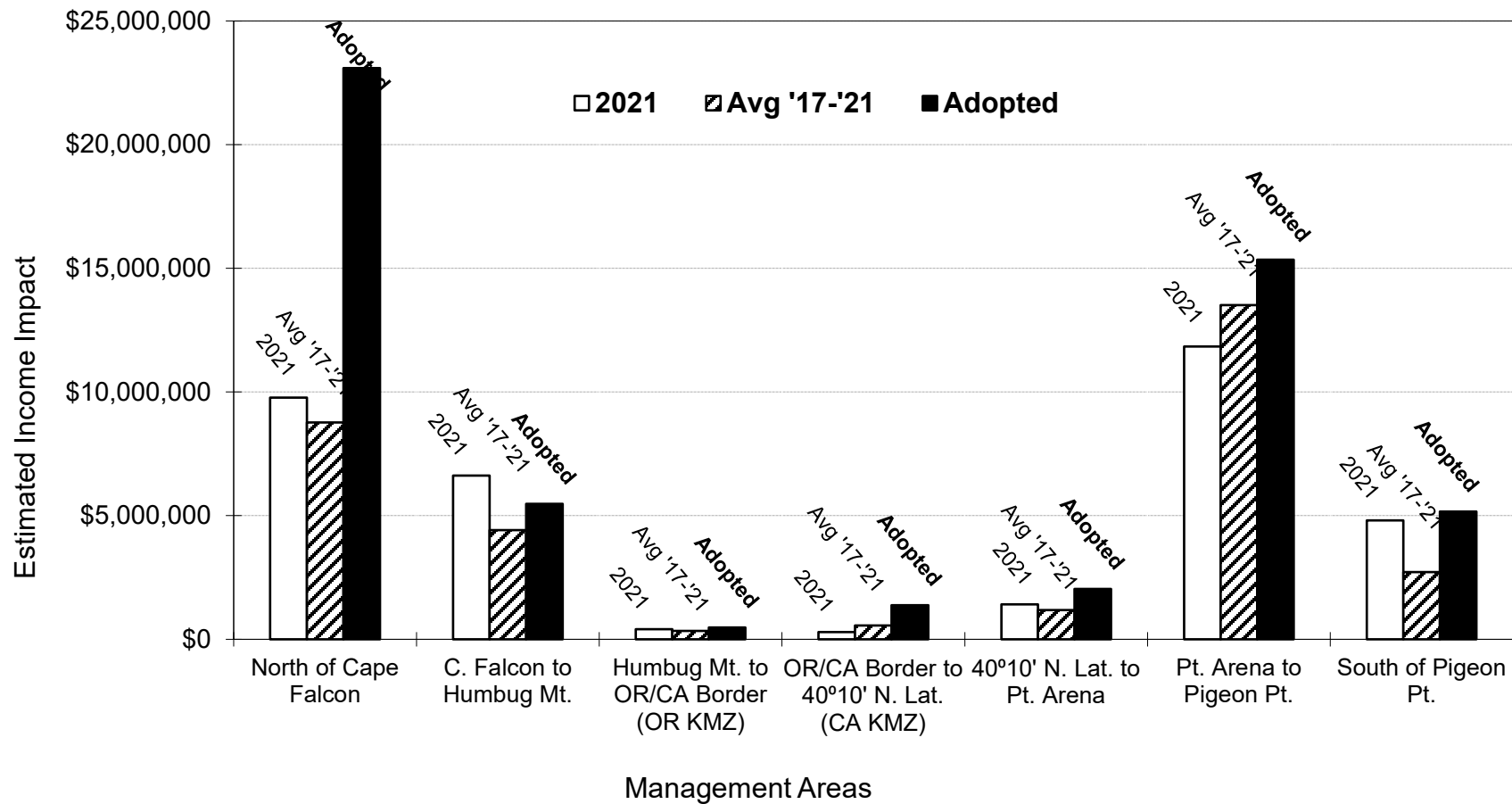


FIGURE 4. Projected coastal community personal income impacts associated with the 2022 recreational ocean salmon fishery under Council-adopted management measures compared to estimated 2021 and the 2017-2021 inflation-adjusted average (in 2021 dollars).

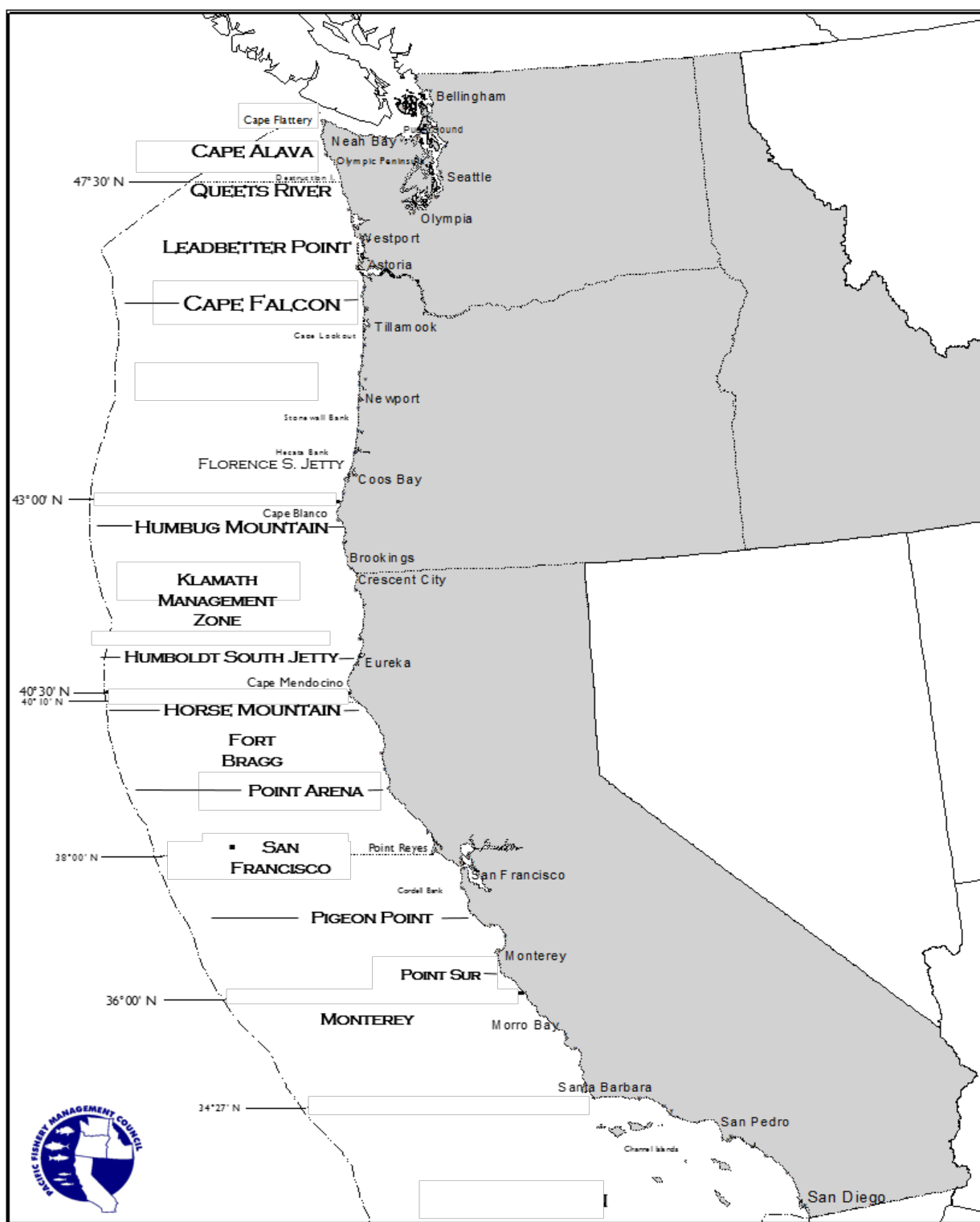


FIGURE 5. Map of Pacific West Coast with major salmon ports and management boundaries. This map is for reference only and is not intended for use in navigation or fishery regulation.

## APPENDIX A: STANDARDIZED BYCATCH REPORTING METHODOLOGY

The National Marine Fisheries Service (NMFS) requires all fishery management plans (FMPs) to establish a standardized bycatch reporting methodology (SBRM) to assess the amount and type of bycatch occurring in its fisheries (82 FR 6317). SBRM is used to estimate bycatch as it is defined by the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Bycatch includes fish which are harvested in a fishery, but which are not sold or kept for personal use and includes economic discards and regulatory discards.

The Salmon Technical Team (STT) provided a [report](#) to the Pacific Fishery Management Council (Council) in November 2021 which (1) described monitoring programs that generate bycatch estimates for commercial and recreational ocean salmon fisheries, (2) described how SBRM requirements are met, and (3) proposed draft new language for the salmon FMP that would provide further details on SBRM for salmon fisheries (which will be included under Salmon FMP Amendment 22).

Salmon bycatch projections for the upcoming salmon seasons, and postseason salmon bycatch estimates from the previous season are presented in Table 6 of this report (Preseason Report III). Footnotes to Table 6 describe aspects of the bycatch enumeration methodology, but do not fully describe the methods used. To more comprehensively document the methods used to make preseason and postseason estimates of bycatch, the STT developed this appendix that describes the data and methods used to generate bycatch projections and estimates, and how the methods differ for commercial and recreational fisheries and along the coast.

### CHINOOK

#### North of Cape Falcon

Projected Chinook bycatch mortality in the north of Cape Falcon area is estimated using the [Chinook Fishery Regulation Assessment Model \(FRAM\)](#) and is the sum of both drop-off and hook-and-release mortality. Drop-off mortality is estimated as five percent of the total number of legal-sized Chinook projected by the model to be encountered (brought to the boat and either retained or released) based on preseason abundance forecasts and the fishery management measures being modeled.

Hooking mortality occurs in both standard Chinook retention fisheries and in mark-selective Chinook fisheries. Sublegal-sized encounters and mortalities occur in all Chinook retention fisheries with size limits and are calculated based on the minimum size limit for a fishery and stock-specific von Bertalanffy growth equations for the stocks that contribute to each fishery. Legal-sized releases during Chinook directed fisheries are only expected to occur if mark-selective regulations are in place, which are rare for Chinook in Council area fisheries. In these situations, all legal-sized unclipped Chinook are expected to be released, except for a small allowance for an “unmarked retention error” rate, which is the proportion of legal-sized unclipped Chinook that are retained. Similarly, all legal-sized clipped encounters are assumed to be retained, except for a small allowance for a “marked recognition error” rate, which specifies the proportion of legal-sized clipped Chinook encounters that are expected to be released. Hooking mortality is calculated by applying hooking mortality rates to the estimated number of sublegal- and legal-sized releases in each fishery. Hooking mortality rates in north of Cape Falcon Council area fisheries vary by gear type and are assumed to be 26 percent for ocean commercial troll and 14 percent for ocean recreational fisheries.

Regulations requiring Chinook non-retention in Council area fisheries north of Cape Falcon are rare and have not occurred in many years. Should they occur, expected encounters would likely be estimated external to the model using similar approaches to those used for coho (see below), based on previous estimates of Chinook per coho encounter ratios from on board observer, on-water trip report, or dockside sampling data. These estimates of encounters are supplied as inputs to Chinook FRAM, to which gear-specific hooking mortality rates get applied.

Observed Chinook bycatch mortality in both the troll and recreational fisheries in the north of Cape Falcon area are calculated simply by scaling the preseason projected bycatch mortality from the respective fishing year by the ratio of the observed catch to the preseason projected catch.

#### South of Cape Falcon

Chinook bycatch mortality in the south of Cape Falcon area is estimated using interview data collected at the docks in California. All sampled boats are asked about the number of salmon discarded. Then hook and release mortality rates (HRM) are applied to the bycatch estimate in each fishery. The sport HRM south of Point Arena is a weighted average of the mooching (42.2 percent) and trolling (14 percent) HRM rates, weighted for the proportion of angling effort that used the respective modes of fishing. The sport HRM north of point arena is 14 percent and the commercial HRM in all areas South of Falcon is 26 percent. Total bycatch mortality is the combined hook and release mortality and drop off mortality. Drop off mortality is the total estimated contacts (catch + bycatch) multiplied by a 5 percent drop off mortality rate.

When projecting bycatch mortality for an upcoming season, fishery-specific bycatch impact rates (bycatch mortality per harvest) are used from the previous season and applied to the harvest projections for the upcoming season<sup>2</sup>. Harvest projections for summer fisheries are produced by the KOHM and SHM models, however the models do not project catch in fall fisheries (September- November).

The projected total harvest north of Point Arena is calculated as:

KOHM summer catch + [Sept, Oct, Nov] federal days open \* 5- year average [Sept, Oct, Nov] catch per day open + 5-year average [Sept, Oct, Nov, Dec] state-waters-only catch.

The projected total harvest south of Point Arena is projected as :

SHM summer catch + [Sept, Oct, Nov] federal days open \* 5- year average [Sept, Oct, Nov] catch per day open.

### **COHO**

Projected coho bycatch mortality in Council area fisheries is estimated using [coho FRAM](#) and is the sum of both drop-off and hook and release mortality. In Council area fisheries, coho bycatch mortality occurs in standard retention fisheries, in mark-selective retention fisheries, and in coho non-retention fisheries. In standard retention fisheries, bycatch mortality is equal to the drop-off mortality, which is calculated by applying the assumed drop-off mortality rate of five percent to the total number of coho encountered, which is equivalent to the landed catch.

In mark-selective coho fisheries, the model projects encounters by mark-status (adipose fin clip). All unclipped encounters are assumed to be released, except for a small allowance for an “unmarked retention error” rate, which specifies the proportion of unmarked encounters that are expected to be retained and is an input into the model that can be specified at a fishery and time-period specific level. Similarly, all clipped encounters are assumed to be retained, except for a small allowance for a “marked recognition error” rate, which specifies the proportion of marked encounters that are expected to be released and is an input into the model that can be specified at a fishery and time-period specific level. Projected hooking mortality in coho mark-selective fisheries is calculated as the total number of coho projected to be released (both marked and unmarked) times the fishery-specific hooking mortality rate. Hooking mortality rates in Council area fisheries vary by gear type and are assumed to be 26 percent for ocean commercial troll and 14 percent for ocean recreational fisheries, except for those that occur south of Point Arena, which vary

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<sup>2</sup> Bycatch projections in coho-only fisheries are calculated in the same manner but using total legal-sized Chinook encounters from the KOHM and SHM rather than harvest.

annually based on the proportion of fish caught using mooching versus trolling gear (see above). Projected drop-off mortality in coho mark-selective fisheries is calculated as the total number of coho encounters (retained plus released) times the assumed drop-off mortality rate of five percent. Total projected bycatch mortality in a coho mark-selective fishery is calculated as the sum of hooking mortality and drop-off mortality.

For coho non-retention fisheries, projected bycatch mortality is calculated externally to FRAM and provided as an input to the model. While the method for calculating bycatch mortality is generally consistent (i.e., drop-off and hooking mortality rates applied to estimates of coho encountered and released), the methods for estimating coho encounters during non-retention time periods varies by region across the Council area. For coho non-retention fisheries that occur north of Cape Falcon, the projected coho encounters in commercial troll fisheries are based on Chinook to coho encounter ratios from on-board observer data collected between 1998 and 2006 in the Treaty Indian troll fishery and between 2004 and 2007 in the non-Indian commercial troll fishery. In recreational fisheries, expected coho encounters are based on chinook to coho encounter ratios collected through dockside sampling programs during previous years' coho non-retention fisheries. Drop-off and hooking mortality rates are applied to these estimates of encounters in non-retention fisheries to project bycatch mortality.

For non-retention fisheries that occur between Cape Falcon and Humbug Mountain, total coho encounters for each fishery/time stratum are estimated by applying a CPUE to projected effort produced by the Klamath Ocean Harvest Model (KOHM) for the specific set of fishery management measures being modeled. The CPUE values are derived using landings and effort data from the coho FRAM base period years (1986 – 1992, when coho retention was allowed in these fisheries), then scaled based on the ratio of the current year's OPI coho forecast relative to the average OPI coho abundance during the base period years. Adjustments are incorporated that discount the projected number of encounters in Oregon troll fisheries to account for targeting Chinook only (25 percent reduction) and for a four-spread gear credit (reductions variable by area). Drop-off and hooking mortality rates are applied to these estimates of encounters in non-retention fisheries to project bycatch mortality.

For non-retention fisheries that occur south of Humbug Mountain, total coho encounters are estimated using coho FRAM. Fishery scaler inputs for each FRAM fishery/time stratum are derived by dividing projected effort (from the KOHM) by the average effort that occurred during the coho FRAM base period years, then the model is run using these inputs as a standard retention fishery input. The projected landed catch that results from this model run is used as the projected total encounters during the non-retention period in each fishery/time stratum. This results in encounters estimates that are scaled both for the projected levels of fishing effort and the forecasted coho stock abundances. Drop-off and hooking mortality rates, in addition to any gear/target adjustments, are applied to these estimates of encounters in non-retention fisheries to project bycatch mortality.

Observed bycatch mortality in the Council area troll fisheries that permit coho retention (both standard and mark-selective retention) is calculated simply by scaling the preseason projected bycatch mortality from the year of interest by the ratio of the observed catch to the preseason projected catch, as there are no data on the number of releases that could be used to generate an independent estimate.

In the Council area, recreational fisheries that permit coho retention (either standard or mark-selective retention) occur in both Washington and Oregon. In these fisheries the numbers of coho retained and released by fishery/time stratum are estimated through comprehensive dockside sampling programs<sup>3</sup> operated by WDFW and ODFW. These sampling programs employ some combination of on-board observers, dockside interviews, and voluntary on-water trip reports (VTRs), which are forms completed by

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<sup>3</sup> See the links below for details on methods associated with WDFW and ODFW dockside sampling and estimation programs:

- <https://www.recfin.org/wp-content/uploads/2017/11/Washington-Ocean-Sampling-Program-OSP-Overview-for-RECFIN-UPDATEDNOV-2....pdf>
- [https://www.dfw.state.or.us/MRP/salmon/docs/ORBS\\_Design\\_2021.pdf](https://www.dfw.state.or.us/MRP/salmon/docs/ORBS_Design_2021.pdf)



anglers while fishing, to enumerate encounters by species, size class, and mark status. These data are used to estimate the total number of coho retained and released from which bycatch mortality is calculated by applying the drop-off and hooking mortality rates as described above.

Methods for calculating observed bycatch mortality in coho non-retention fisheries vary by region. In fisheries north of Cape Falcon, where preseason projections of coho non-retention encounters are derived based on assumed coho-per-Chinook encounter rates, the preseason projections are scaled by the ratio of observed Chinook catch to the preseason projected Chinook catch. For non-retention fisheries south of Cape Falcon, the same methods are used as described above, but using observed effort and abundances rather than the forecasted values that were used for preseason projections.