

# PRESEASON REPORT II

## PROPOSED ALTERNATIVES AND ENVIRONMENTAL ASSESSMENT PART 2 FOR 2020 OCEAN SALMON FISHERY REGULATIONS

REGULATION IDENTIFIER NUMBER 0648- BJ48



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MARCH 2020

## PUBLIC HEARINGS ON SALMON ALTERNATIVES

### Hearings held remotely via webinar

#### Washington

(Previously scheduled to occur in Westport)

Monday, March 23, 2020, 7:00 p.m.

Web link: <https://meetings.ringcentral.com/join>

Meeting ID: 149 172 9819

#### Oregon

(previously scheduled to occur in Coos Bay)

Monday, March 23, 2020, 7:00 p.m.

<https://meetings.ringcentral.com/join>

Meeting ID: 148 970 9612

#### California

(previously scheduled to occur in Eureka)

Tuesday, March 24, 2020, 7:00 p.m.

<https://meetings.ringcentral.com/join>

Meeting ID: 148 004 4364

Public comment on the Alternatives will also be accepted during the April Council meeting on Sunday, April 5, during the public comment period for Agenda Item E.1 via webinar.

Public comments may also be submitted to the PFMC Public Comment Electronic Portal (E-Portal). The supplemental public comment deadline is 5:00 p.m. Pacific Time, Friday, March 27, 2020.

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## LIST OF ACRONYMS AND ABBREVIATIONS

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

## LIST OF ACRONYMS AND ABBREVIATIONS (continued)

OPI	Oregon Production Index
OSP	Oregon State Police
OY	optimum yield
PDO	Pacific (inter) Decadal Oscillation
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
QTA	Quinalt Treaty Area
RER	rebuilding exploitation rate
RMP	Resource Management Plan
RK	Rogue/Klamath (hatchery coho)
S <sub>ABC</sub>	spawning escapement associated with ABC
S <sub>ACL</sub>	spawning escapement associated with ACL (= S <sub>ABC</sub> )
SCH	Spring Creek Hatchery (Col. R. tule fall Chinook returning to Spring Creek Hatchery [above Bonneville Dam])
SEAK	Southeast Alaska
S <sub>MSY</sub>	MSY spawning escapement
SET	spawning escapement target
SF	San Francisco (Point Arena to Pigeon Point)
SONCC	Southern Oregon/Northern California Coast (coho ESU)
SRFC	Sacramento River fall Chinook
SRFI	Snake River fall (Chinook) Index
SRW	Snake River wild (fall Chinook)
SRWC	Sacramento River winter Chinook
STT	Salmon Technical Team
SWO	State Waters Only (fisheries off Oregon south of Cape Falcon)
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
WCVI	West Coast Vancouver Island
WDFW	Washington Department of Fish and Wildlife

## 1.0 INTRODUCTION

This is the third report in an annual series of four reports prepared by the Salmon Technical Team (STT) of the Pacific Fishery Management Council (Council) to document and help guide ocean salmon fishery management off the coasts of Washington, Oregon, and California (PFMC 2020a, PFMC 2020b). This report describes the Council's proposed ocean salmon management alternatives for 2020 and characterizes the expected impacts on ocean salmon fisheries and the stocks that support them. The Council solicits public comments on the proposed management Alternatives in preparation for adopting final management recommendations at its April meeting. Oral and written comments may be presented at public hearings at the times and locations displayed on the inside front cover of this report. April Council web-only meeting (previously scheduled for the Hilton Vancouver Hotel in Vancouver, Washington). Written public comments may also be submitted to the PFMC Public Comment Electronic Portal ([E-Portal](#)). The supplemental public comment deadline is 5:00 p.m. Pacific Time, Friday, March 27, 2020.

This report also constitutes the second part of an Environmental Assessment (EA) to comply with National Environmental Policy Act (NEPA) requirements for the 2020 ocean salmon regulations. An EA is used to determine whether an action being considered by a Federal agency has significant environmental impacts. This part of the EA includes a statement of the purpose and need, a description of the affected environment, a description of 2020 ocean salmon regulation alternatives being considered, and an analysis of the effects of those Alternatives on the affected environment. The first part of the EA (Preseason Report I; PFMC 2020b) included a description of the No-Action alternative and an analysis of the effects of the No-Action alternative on salmon stocks managed under the Pacific Coast Salmon Fishery Management Plan (FMP), which is one component of the affected environment. Along with the description and analysis of the Proposed Action in Preseason Report III (developed after the Council makes a final recommendation in April 2020), 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.

### 1.1 *Purpose and Need*

The purpose of this action, implementation of the 2020 ocean salmon fishery management measures, is to allow fisheries to harvest surplus production of healthy natural and hatchery salmon stocks within the constraints specified under the Salmon FMP, the Pacific Salmon Treaty (PST), and consultation standards established for salmon stocks listed under the Endangered Species Act (ESA). In achieving this purpose, management measures must take into account the allocation of harvest among different user groups and port areas. Without this action, 2019 management measures would be in effect, which do not consider changes in abundance of stocks in the mixed stock ocean salmon fisheries. Therefore, this action is needed to ensure constraining stocks are not overharvested and that harvest of abundant stocks can be optimized to achieve the most overall benefit to the nation.

The Salmon FMP establishes nine more general harvest-related objectives:

1. Establish ocean exploitation rates for commercial and recreational salmon fisheries that are consistent with requirements for stock conservation objectives and annual catch limits, specified ESA consultation or recovery standards, or Council adopted rebuilding plans.
2. Fulfill obligations to provide for Indian harvest opportunity as provided in treaties with the United States, as mandated by applicable decisions of the Federal courts, and as specified in the October 4, 1993, opinion of the Solicitor, Department of Interior, with regard to Federally-recognized Indian fishing rights of Klamath River tribes.



3. Maintain ocean salmon fishing seasons that support established recreational and commercial fisheries, while meeting salmon harvest allocation objectives among ocean and inside recreational and commercial fisheries that are fair and equitable, and in which fishing interests shall equitably share the obligations of fulfilling any treaty or other legal requirements for harvest opportunities.
4. Minimize fishery mortalities for those fish not landed from all ocean salmon fisheries as consistent with achieving optimum yield (OY) and bycatch management specifications.
5. Manage and regulate fisheries, so the OY encompasses the quantity and value of food produced, the recreational value, and the social and economic values of the fisheries.
6. Develop fair and creative approaches to managing fishing effort and evaluate and apply effort management systems as appropriate to achieve these management objectives.
7. Support the enhancement of salmon stock abundance in conjunction with fishing effort management programs to facilitate economically viable and socially acceptable commercial, recreational, and tribal seasons.
8. Achieve long-term coordination with the member states of the Council, Indian tribes with Federally recognized fishing rights, Canada, the North Pacific Fishery Management Council, Alaska, and other management entities which are responsible for salmon habitat or production. Manage fisheries consistent with the Pacific Salmon Treaty and other international treaty obligations.
9. In recommending seasons, to the extent practicable, promote the safety of human life at sea.

These objectives, along with the consultation standards established under the ESA, provide "sideboards" for setting management measures necessary to implement the Salmon FMP, which conforms to the terms and requirements of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the National Standards Guidelines.

## **2.0 SELECTION OF FINAL MANAGEMENT MEASURES**

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

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

The impact analyses presented in this document reflect uncertainties and limitations of information available at the time of the March 2020 Council meeting. At this point in the planning cycle, the STT's

impact assessments reflect five key assumptions relative to stocks impacted by Canadian and Alaskan fisheries:

- 1) abundance levels for Canadian Chinook and coho stocks identical to 2019 forecasts;
- 2) for Canadian Chinook fisheries managed under the aggregate abundance-based management (AABM) provisions of the 2019 PST Agreement, including Northern British Columbia and West Coast Vancouver Island (WCVI) troll and sport fisheries, 2020 fisheries were modeled using fishing effort scalars from the final 2019 preseason model run;
- 3) for Canadian Chinook fisheries managed under individual stock-based management (ISBM) regimes, the 2020 fishery inputs were modeled using recent two-year average catches to reflect anticipated fishing levels consistent with the recently adopted 2019 PST Agreement;
- 4) for Canadian coho fisheries, all fisheries were modeled using single-year 2018 postseason fishing effort scalars from the Fishery Regulation Assessment Model (FRAM), with the exception of Fraser sport fisheries, which used 2017 postseason scalars, and Fraser net and terminal fisheries, which used 2016 postseason scalars; and
- 5) for Southern U.S. inside fisheries for Chinook and inside and coastal terminal fisheries for coho, the 2019 final preseason modeled fisheries were used.

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

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

### **3.0 SALMON TECHNICAL TEAM CONCERNS**

The Salmon Technical Team has no concerns to report in this document for 2020.

### **4.0 SALMON FISHERY MANAGEMENT PLAN REQUIREMENTS**

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

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

Administrative objectives are requirements for meeting other applicable law outside of the Salmon FMP. These requirements include ESA consultation standards, international treaties, and tribal trust

responsibilities. The Salmon FMP defers to NMFS consultation standards for salmon stocks listed under the ESA in regard to biological conservation objectives. Section 5.0 of this document provides greater detail on ESA listed stocks, while impacts of the Council adopted salmon management measures on ESA listed stocks are included in Table 5a and 5b.

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 salmon management measures on those stocks are included in Table 5a and 5b.

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

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

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

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 also among recreational port subareas. South of Cape Falcon there are sharing formulas for coho between commercial and recreational sectors. Alternatives for the 2020 salmon management measures adopted by the Council meet the allocation requirements for Chinook fisheries north of Cape Falcon in the Salmon FMP.

## 5.0 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	
<b>Chinook</b>						
Chinook Salmon ( <i>O. tshawytscha</i> )	Sacramento River Winter	Endangered	83 FR 18233	4/26/2018	54 FR 32085	8/1/1989
	Snake River Fall	Threatened	76 FR 50448	8/15/2011	57 FR 14653	4/22/1992
	Snake River Spring/Summer	Threatened	76 FR 50448	8/15/2011	57 FR 14653	4/22/1992
	Puget Sound	Threatened	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
	Lower Columbia River	Threatened	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
	Upper Willamette River	Threatened	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
	Upper Columbia River Spring	Endangered	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
	Central Valley Spring	Threatened	76 FR 50447	8/15/2011	64 FR 50394	9/16/1999
	California Coastal	Threatened	76 FR 50447	8/15/2011	64 FR 50394	9/16/1999
<b>Chum</b>						
Chum Salmon ( <i>O. keta</i> )	Hood Canal Summer-Run	Threatened	76 FR 50448	8/15/2011	64 FR 14508	3/25/1999
	Columbia River	Threatened	76 FR 50448	8/15/2011	64 FR 14508	3/25/1999
<b>Coho</b>						
Coho Salmon ( <i>O. kisutch</i> )	Central California Coastal	Endangered	76 FR 50447	8/15/2011	61 FR 56138	10/31/1996
	S. Oregon/ N. California Coastal	Threatened	76 FR 50447	8/15/2011	62 FR 24588	5/6/1997
	Oregon Coastal	Threatened	76 FR 50448	8/15/2011	63 FR 42587	8/10/1998
	Lower Columbia River	Threatened	76 FR 50448	8/15/2011	70 FR 37160	6/28/2005
<b>Sockeye</b>						
Sockeye Salmon ( <i>O. nerka</i> )	Snake River	Endangered	76 FR 50448	8/15/2011	56 FR 58619	11/20/1991
	Ozette Lake	Threatened	76 FR 50448	8/15/2011	64 FR 14528	3/25/1999

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

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

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

Amendment 12 to the Salmon FMP added the generic category “species listed under the ESA” to the list of stocks in the salmon management unit and modified respective escapement goals to include “manage

consistent with NMFS jeopardy standards or recovery plans to meet immediate conservation needs and long-term recovery of the species.” Amendment 14 specified those listed ESUs and clarified which stocks in the FMP management unit were representative of the ESUs.

In a letter received by the Council on February 28, 2020, NMFS provided guidance on protective measures for species listed under the ESA during the 2020 fishing season. The letter summarized the requirements of NMFS’ BOs on the effects of potential actions under the salmon FMP on listed salmon and provided the anticipated consultation standards of the BOs in preparation for the 2020 management season, as well as further guidance and recommendations for the 2020 management season.

The ESA consultation standards, exploitation rates, and other criteria in place for the 2020 management season are presented in Table 5a and 5b. Some listed stocks are either rarely caught in Council fisheries (e.g., spring Chinook from the upper Columbia River) or already receive sufficient protection from other salmon FMP and ESA standards (e.g., Central Valley spring Chinook). NMFS has determined that management actions designed to limit catch from these ESUs, beyond what will be provided by harvest constraints for other stocks, are not necessary.

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

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

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

## **6.0 OBLIGATIONS UNDER THE PACIFIC SALMON TREATY**

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

### **6.1 Chinook Salmon Management**

A new ten-year agreement under the PST was adopted by both the U.S. and Canada and implemented beginning with the 2019 fishing year. The new agreement includes reductions to catch ceilings for Southeast Alaska (SEAK) and WCVI AABM fisheries relative to the prior 2009 agreement. For SEAK, the reductions range from 1.5 percent in years of high abundance to 7.5 percent in years of low abundance. For WCVI, the reductions range from 2.4 percent in years of high abundance to 12.5 percent in years of low abundance. Additionally, beginning with the 2019 agreement, while catch ceilings will continue to be

determined using the AI from the PSC Chinook Model for Northern British Columbia and WCVI AABM fisheries, the allowable catches for SEAK fisheries will be set using a catch-per-unit-effort (CPUE) estimate from the early winter power troll fishery (see Tables 1 and 2 in Chapter 3 of the 2019 Agreement for specifics).

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

Key considerations for Canadian domestic fishery management for Chinook in 2020 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 (depending on a listing decision under Canada's Species at Risk Act). Increasing the availability of Chinook salmon in key foraging areas of Southern Resident Killer Whales in the southern BC region is an additional consideration which will be supported through conservation actions implemented for Fraser River and other Chinook salmon.

## **6.2 Coho Salmon Management**

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

The categorical status of U.S. coho management units is reported to comply with obligations pursuant to the 2019 PST Southern Coho Management Plan. Categorical status is employed by the PSC under the 2019 PST Southern Coho Management Plan to indicate general ranges of allowable total exploitation rates for U.S. and Canadian coho management units. Three categories are employed: low (total exploitation rate less than 20 percent), moderate (total exploitation rate 20 percent to 40 percent), and abundant (total exploitation rate greater than 40 percent). For the Puget Sound management units, the 2019 PST Southern Coho Management Plan uses the thresholds and stepped harvest rate goals from the Comprehensive Coho Agreement, developed by Washington and the Puget Sound tribes, and adopted by the Council as FMP conservation objectives in November 2009. Actual exploitation rate constraints for Canadian fisheries on U.S. coho management units are determined by formulas that specify sharing of allowable exploitation rates

and a “composite rule.” The composite rule adjusts constraints for Canadian fishery exploitation rates based on the number of U.S. management units which fall in a given category. For example, if only one Washington coastal or Puget Sound coho management unit is in low status, Canadian fisheries are constrained to a total exploitation rate on that unit of 12 percent; if two or more Washington coastal management units are in low status, the constraint becomes 10 percent. The most restrictive exploitation rate limit for Canadian fishery impacts on U.S. coho management units is 10 percent.

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

For 2020, 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	35%	Low	
Stillaguamish	35%	Low	
Snohomish	20%	Critical	
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	35%	Moderate	
Stillaguamish	35%	Moderate	
Snohomish	20%	Low	
Hood Canal	45%	Moderate	
Strait of Juan de Fuca	20%	Low	
Quillayute Fall <sup>c/</sup>	31%	Moderate	
Hoh <sup>c/</sup>	52%	Abundant	
Queets <sup>c/</sup>	26%	Moderate	
Grays Harbor	29%	Moderate	

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). This also becomes the maximum allowable rate unless the stock is in the "Low" status. In that case, an ER of up to 20% is allowed.

Key considerations for Canadian fishery management for coho in 2020 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 pink, Chinook, sockeye, and chum salmon; and (4) the desire to provide increased opportunity for sport fisheries through mark-selective retention regulations. 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.

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% 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 2020 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 2020 Southern U.S. fisheries to a maximum of 10.0 percent.

## **7.0 DESCRIPTION OF THE ALTERNATIVES**

Detailed information on the proposed ocean salmon regulation Alternatives are presented in Tables 1 (non-Indian commercial), 2 (recreational), and 3 (treaty Indian). Notable changes from recent seasons are highlighted below.

### **7.1 Commercial**

Alternatives for the area north of Cape Falcon reflect a similar total abundance of Chinook and decreased Columbia River hatchery and natural coho compared to 2019 forecasts. In 2020, allowable catch of Chinook will likely be similar to 2019 due to similar expected impacts in northern fisheries, and an identical total exploitation rate limit on LCR natural tule fall Chinook compared to 2019. Coho catch quotas will be less than 2019 due to a decreased harvestable surplus of Columbia River hatchery coho.

Alternative I north of Cape Falcon assigns 67 percent of the troll Chinook quota to the May-June Chinook directed fishery, Alternative II assigns 50 percent to the May-June Chinook directed fishery. In Alternative I, the May-June fishery opens May 6 seven days per week. Alternative II opens initially for the period of May 6 through May 12, then re-opens on May 15 five days per week (Friday - Tuesday). In Alternatives I and II, sub-quotas in the area north of the Queets River and in the area south of Leadbetter Point are in place during the May-June time period. The summer all-salmon fishery in Alternative I opens seven days per week; Alternative II opens five days per week (Friday - Tuesday). Alternative I includes a weekly landing and possession limit for Chinook in all areas, and both Alternatives I and II include, and a weekly coho landing and possession limit in all areas. In both Alternatives I and II, the fishery is scheduled to open in 2021 on May 1. In Alternative III the fishery is closed.

Commercial fisheries south of Cape Falcon will be constrained primarily by KRFC and SRWC. Sacramento River fall Chinook (SRFC) and KRFC were declared overfished in 2018 and remain overfished in 2020. The Council provided guidance to structure fisheries to achieve a KRFC natural area spawner escapement of 40,700 adults under Alternative III. This natural area adult spawner goal is higher than that required by both the FMP and the KRFC rebuilding plan. Alternatives I and II were structured to achieve the FMP guidance for KRFC under a *de minimis* fishing regime: a maximum allowable harvest rate of 25.0 percent or 36,206 natural area spawners.

For the area between Cape Falcon and Humbug Mountain, Alternative I would open on April 15 and run through the end of the month. The fishery re-opens on May 6 and is open for approximately three weeks in each of May through August. The entire months of September and October are open. The fishery under Alternative II is similar to Alternative I with small differences in days open in May and August. Under



Alternative III, the fishery would open on May 6 and be open for approximately three weeks in each of May, June, and July. In August, the area between Cape Falcon and Humbug Mountain will be open from August 1-6. The fishery would remain open only in the area between Cape Falcon and the south end of Heceta Bank from August 7-18. The entire month of September would be open between Cape Falcon and Humbug Mountain.

In the Oregon portion of the Klamath Management Zone (KMZ) under Alternative I, the season would be open for April 15-30. May, June, and July would be managed under monthly quotas of 500, 700, and 300 Chinook, respectively, with weekly landing and possession limits of 40 Chinook. Under Alternative II, the season would be open from April 15 through May 26, followed by a June quota of 500 Chinook with a weekly landing and possession limit of 40 Chinook. Under Alternative III, the fishery would be limited to May 6-31.

For the California portion of the KMZ, the fishery would be closed under Alternatives I and III. Alternative II allows for monthly Chinook quotas of 1,500 in June, 1,250 in July, and 1,000 in August. The fishery would be open five days per week with daily landing and possession limits and a minimum size limit of 28 inches.

In the Fort Bragg area under Alternative I the fishery would be open for most of August with a 28-inch minimum size limit and all of September under a 27-inch minimum size limit. Alternatives II and III are limited to the month of September with a 27-inch minimum size limit.

In the San Francisco area under Alternative I, the fishery would be open for portions of May, June, and July, nearly all of August, and the month of September. Alternative II has a similar structure as Alternative I but with additional days open in May, June, and July. Under Alternative III, the fishery would be open for portions of May, June, and August and all of September. The minimum size limit is 27 inches for each of the Alternatives through August, and 26 inches thereafter. The Fall Area Target Zone fishery between Point Reyes and Point San Pedro would also be open Monday through Friday in early October with a 26-inch minimum size limit under each of the Alternatives.

In the Monterey area under each of the Alternatives the fishery would be open for portions of each month between May and August with a 27-inch minimum size limit. Differences in the number of days open for each month can be found in Table 1.

## 7.2 *Recreational*

North of Cape Falcon: In Alternative I, all areas open June 14 for all salmon species except coho, seven days per week, with a daily limit of one salmon. Beginning June 29, all areas will open for all salmon species with a daily limit of two salmon, no more than one of which may be a Chinook. All areas will open seven days per week, except the area between Queets River and Leadbetter Point will open five days per week, Sunday – Thursday. The closing date in all areas is September 30.

In Alternative II, the areas north of the Queets River open for all salmon species seven days per week on June 27. The areas south of the Queets River open for all salmon species five days per week (Sunday – Thursday) on June 28. The closing date in all areas is September 13.

In Alternative III, all areas are closed.

In all Alternatives north of Cape Falcon, all retained coho must be marked with a healed adipose fin clip. In the Westport subarea, the Grays Harbor Control Zone is closed beginning August 10 in all Alternatives.

South of Cape Falcon, for the North and Central Oregon coast, Chinook fisheries open March 15 and run through October 31 under each of the Alternatives. Each Alternative also includes a mark-selective coho quota fishery in the summer, with different quota sizes and closing dates. Alternatives I and II also include a non-mark-selective coho fishery from Cape Falcon to Humbug Mountain in late-summer/early fall, with open days and quotas sizes varying between the Alternatives.

In the Oregon KMZ, Alternatives I and II would open for Chinook fishing on May 16 and run into July with differing closing dates. Alternative III would allow for Chinook fishing from June 20 through July 5.

In the California KMZ, Alternatives I and II would open in early to mid-June and remain open until the end of July. Under Alternative III the fishery would be open from July 1-19. The minimum size limit is 20 inches under each of the Alternatives.

In the Fort Bragg area, the fishery would open on April 11 under each of the Alternatives and remain open until October 30 (Alternative III), October 31 (Alternative II), or November 1 (Alternative I). The minimum size limit is 20 inches under each of the Alternatives.

In the San Francisco area, the fishery would open on April 11 for each of the Alternatives. Under Alternative I, the fishery would run until November 1, with a 24-inch minimum size limit through April and a 20-inch minimum size limit for the remainder of the season. Alternative II is identical to Alternative I, except the season closes on October 31. For Alternative III, the fishery would have a two-week closure in early May and a season ending date of October 30. The minimum size limit would be 24 inches through June and 20 inches thereafter under Alternative III.

For the Monterey area, from Pigeon Point to the U.S./Mexico border, the fishery would open on April 4 and run continuously until October 4 (Alternative I), September 27 (Alternative II), or September 7 (Alternative III). The minimum size limit is 24 inches under each of the Alternatives.

### **7.3 Treaty Indian**

Two sets of tribal troll Alternatives were proposed and will be evaluated during the North of Falcon process.

The Quinalt Treaty Area (QTA) Tribes, which include the Quinalt Indian Nation, Hoh Tribe and the Quileute Tribe, proposed Alternatives with a Chinook directed fishery in the May-June time period and an all-species fishery targeting coho and Chinook from July to August 31. Under the QTA proposal the Chinook Alternative would be split 60/40 between each fishing season.

The Makah Tribe (MT) proposed Alternatives with a Chinook directed fishery in the May-June time period and an all-species fishery targeting coho and Chinook from July to September 15. Under the MT proposal the Chinook Alternative would be split 50/50 between each fishing season.

For both proposals, any balance of fish remaining from the Chinook directed fishery may be transferred to the all-species fishery on an impact neutral basis.

## **8.0 AFFECTED ENVIRONMENT AND ANALYSIS OF IMPACTS**

Based on National Oceanic and Atmospheric Administration (NOAA) Administrative Order (NAO) 216-6 Section 6.02, the affected environment may consist of the following components:

- Target (FMP) species
- Social or economic environments
- Non-target species
- Essential Fish Habitat

- Public health or safety
- ESA listed (non-salmon) species or critical habitat
- Marine mammals
- Biodiversity or ecosystem function

## 8.1 *Salmon Stocks in the Fishery*

Target stocks include Chinook, coho, and pink salmon stocks identified in Appendix A, Table A-1 of Preseason Report I (Part 1 of this EA; PFMC 2020b), which includes several ESA listed Chinook and coho stocks. These ESA listed stocks are not targeted in Council area salmon fisheries, but will be included in the analysis of effects on target species because they are impacted coincidentally with targeted salmon stocks and frequently constrain access to targeted stocks. Environmental impacts to other ESA listed species (e.g., marine mammals) from the Alternatives will be analyzed in a later section of this EA.

A description of the historical baseline for this component of the affected environment is presented in the Review of 2019 Ocean Salmon Fisheries (PFMC 2020a). A more general description of salmon life history and population characteristics is presented in PFMC 2006. The current status (2020 ocean abundance forecasts) of the environmental components expected to be affected by the 2020 ocean salmon fisheries regulation Alternatives (FMP salmon stocks) are described in PFMC 2020b. The criteria used to evaluate whether there are significant effects from the Alternatives on target stocks are achievement of conservation objectives, ACLs, and rebuilding criteria. For ESA listed stocks impacted by the fishery, ESA consultation standards are applied to determine whether there are significant effects. The Salmon FMP conservation objectives are based on the best available science and are intended to prevent overfishing while achieving optimum yield from West Coast salmon fisheries as required by the MSA. The ESA consultation standards are likewise based on the best available science and are intended to ensure that fishery impacts do not appreciably reduce the likelihood of survival and recovery of listed species in the wild. FMP conservation objectives also include criteria for rebuilding overfished stocks. Therefore conservation objectives and consultation standards are appropriate indicators for determining the significance of fishery management actions referred to in NAO 216-6, Section 6.02.

### 8.1.1 **Chinook Salmon**

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

#### 8.1.1.1 *North of Cape Falcon*

Abundance projections important to Chinook harvest management north of Cape Falcon in 2020 are:

- *Columbia River hatchery tules.* Combined production of Lower River Hatchery (LRH) and Spring Creek Hatchery (SCH) stocks returning to the Columbia River is forecasted to be 97,200, which is slightly lower than the 2019 preseason expectation of 100,500. The 2020 LRH forecast is 51,000, which is below the forecast of 54,500 in 2019. The 2020 SCH forecast is 46,200, which is similar to the 2019 forecast of 46,000.

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

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

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

- *LCR natural tule fall Chinook.* The Alternatives have exploitation rates on LCR natural tule fall Chinook that range from 28.3 percent to 36.5 percent when assuming the same preseason river fishery harvest rates as last year, all below the 38.0 percent NMFS consultation standard maximum for 2020. Additional shaping of PSC and inriver fisheries prior to the April Council meeting may result in minor changes to the anticipated ERs presented in the Alternatives. LCR tules are a constraining Chinook stock for fisheries north of Cape Falcon in 2020.
- *LRW fall Chinook.* Alternatives have ocean escapement values ranging from 19,500 to 20,600, which exceeds the ESA consultation standard of 6,900 minimum ocean escapement. LRW Chinook will not constrain ocean fisheries north of Cape Falcon in 2020.
- *SRW fall Chinook.* Alternatives have ocean exploitation rates ranging from 27.3 percent to 54.1 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. SRW Chinook will not constrain ocean fisheries north of Cape Falcon in 2020.

All Alternatives for Chinook fisheries north of Cape Falcon satisfy NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for relevant Chinook stocks (Tables 5a and 5b).

#### 8.1.1.2 South of Cape Falcon

Status of Chinook stocks important to 2020 Chinook harvest management south of Cape Falcon are:

- *SRFC.* The Sacramento Index forecast is 473,183, which is higher than last year's preseason forecast of 379,632.
- *KRFC.* The ocean abundance forecast for this stock is 149,618 age-3, 36,241 age-4, and 739 age-5 fish. Last year's preseason forecast was 167,504 age-3, 106,119 age-4, and 599 age-5 fish.
- *SRWC.* The forecast of age-3 escapement absent fishing is 3,077, which is higher than last year's preseason forecast of 1,924.

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

- A KRFC natural area spawner escapement of at least 36,206 adults, which is produced, in expectation, by a maximum exploitation rate of 25.0 percent (FMP control rule). At their March 2020 meeting, the Council provided guidance to target a natural area escapement of 40,700 adults for one Alternative.
- A SRFC hatchery and natural area spawner escapement of at least 141,955 adults, which is produced, in expectation, by a maximum exploitation rate of 70.0 percent (FMP control rule).

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

For 2020, the KRFC harvest control rule specifies a *de minimis* maximum allowable exploitation rate of 25.0 percent. The FMP requires consideration of several factors when recommending *de minimis* exploitation rates. From the FMP:

“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 assessed each of these circumstances, with the exception of minimal needs for Tribal fisheries.

The potential for critically low natural spawner abundance and substocks that may fall below crucial genetic thresholds is expected to be relatively low (18%) given the natural-area spawner projection of 36,206 produced by the 25.0 percent *de minimis* exploitation rate. The projected risk is lower under scenarios with lower exploitation rates.

The forecast of natural area spawners in the absence of additional fishing is 48,237, which is above  $S_{MSY}$  (40,700). If fishing seasons are structured such that the maximum allowable exploitation rate of 25.0 percent is met, the natural area adult spawner expectation is 36,206, which is greater than the Minimum Stock Size Threshold (MSST) of 30,525 natural area spawners but below  $S_{MSY}$ . The natural area spawner abundance has been lower than 36,206 in four of the last five years.

With regard to co-mingled stocks, SRFC have a relatively large abundance forecast and are unlikely to be a constraining stock this year. The 2020 abundance forecast for this stock is the second largest over the past five years.

Indicators of marine and freshwater conditions provided in the California Current Integrated Ecosystem Assessment (CCIEA) California Current Ecosystem Status Report for 2020 suggest a mixed assessment of marine conditions. Several ecological indicators implied average to above-average productivity in 2019. However, there were also indicators of poor conditions such as low krill densities in California and Oregon, and low abundance of juvenile rockfish. In their summary, the CCIEA concludes that “Indicators are consistent with average to below-average salmon returns in 2020”. Regarding freshwater conditions, the CCIEA report identifies above average snow-water equivalent values in northern California as of February 1, 2020. However, annual measurements taken on April 1 are considered the best indicator of snow-water equivalent.

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

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

- *SRFC*. The control rule-defined minimum of 141,955 hatchery and natural area adult spawners is met by each of the Alternatives.
- *KRFC*. The control rule-defined minimum of 36,206 natural area adult spawners is met by each of the Alternatives. Alternative III meets Council guidance specifying a minimum of 40,700 natural area adult spawners.
- *SRWC*. The ESA consultation standard that (1) limits the forecast age-3 impact rate in 2020 fisheries south of Point Arena to a maximum of 20.0 percent and (2) specifies time/area closures and minimum size limit constraints south of Point Arena, is met by each of the Alternatives.
- *California coastal Chinook*. The ESA consultation standard that limits the forecast KRFC age-4 ocean harvest rate to a maximum of 16.0 percent is met by each of the Alternatives.
- *SRW fall Chinook*. SRW Chinook will not constrain ocean fisheries south of Cape Falcon in 2020.

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

### 8.1.2 Coho Salmon

Fishery quotas under the Alternatives are presented in Tables 4a and 4b. Stock-specific management criteria and their forecast values under the Alternatives are provided in Tables 5a and 5b. Projected fishery landings, bycatch, and bycatch mortality under the Alternatives are summarized in Tables 6a and 6b. Tables 7a and 7b provide a breakdown of impacts by fishery and area for LCN, OCN, and RK coho. Table 8 provides expected coho mark rates for west coast fisheries by month.

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

- *Oregon Production Index (OPI) Hatchery coho*. The 2020 forecast for hatchery coho from the Columbia River and the coast south of Cape Falcon of 185,700 is substantially lower than the 2019 forecast of 933,500. The Columbia River early coho forecast is 130,700 compared to the 2019 forecast of 545,000 and the Columbia River late coho forecast is 50,300, compared to the 2019 forecast of 360,600.
- *Oregon Coast natural (OCN) coho*. The 2020 OCN forecast is 83,000 compared to the 2019 forecast of 76,100.
- *Lower Columbia Natural (LCN) coho*. The 2020 LCN forecast is 24,600 compared to the 2019 forecast of 36,900.
- *Puget Sound coho*. Among Puget Sound natural stocks, Snohomish and Strait of Juan de Fuca coho are in the critical category in 2020. Skagit, Stillaguamish, and Hood Canal coho are in the low 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 in 2020.
- *Washington coastal coho.* Forecasts for most Washington coastal coho stocks are lower than in 2019. Quillayute fall, Queets, and Grays Harbor coho are in the moderate category while Hoh is classified as abundant under the PST Southern Coho Management Plan.

Key coho salmon management objectives shaping the Alternatives are:

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 5.0 above. Relevant stocks include Central California Coast coho (south of the Oregon/California border), Southern Oregon/Northern California Coastal (SONCC) coho, OCN coho, and LCN coho. The maximum allowable exploitation rates for 2020 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 18.0 percent for LCN coho, and (3) a marine exploitation rate not to exceed 13.0 percent for Rogue/Klamath (RK) hatchery coho, used as a surrogate for the SONCC coho ESU. Furthermore, coho retention is prohibited in all California ocean fisheries.
- Salmon FMP conservation objectives and obligations under the PST Southern Coho Management Plan for stocks originating along the Washington coast, Puget Sound, and British Columbia as provided in Section 6.2 above. The forecasts for several Puget Sound and Interior Fraser coho stocks in 2020 are low; however, the majority of the exploitation on these stocks occurs in Puget Sound and will be addressed in development of fishing seasons for inside waters during the North of Falcon co-management process by the state and tribes of Washington prior to the April Council meeting. Because of their abundance status, Interior Fraser coho are subject to an exploitation rate ceiling of 10.0 percent in southern U.S. fisheries under the PST Southern Coho Management Plan.

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

- *LCN coho.* All Alternatives satisfy the maximum 18.0 percent exploitation rate when 2020 projected marine impacts are combined with preliminary 2020 pre-season modeled impacts for mainstem Columbia River fisheries. Total exploitation rates projected for the 2020 Alternatives range from 16.7 percent to 9.7 percent.
- *Queets wild coho.* The FMP MSY adult spawner objective for Queets wild coho is 5,800; projected ocean escapement values for the 2020 Alternatives range from 6,500 to 7,100.
- *Interior Fraser coho.* The Southern U.S. exploitation rate is less than the 10.0 percent limit required by the PST Southern Coho Management Plan in all Alternatives when 2020 projected marine impacts are combined with the 2019 pre-season modeled impacts for Puget Sound fisheries. Shaping of the State and Tribal inside fisheries will occur during the North of Falcon process, and ocean fisheries may require further shaping before final management measures are adopted in order to comply with the PST limit.
- *Puget Sound coho.* Total exploitation rates for all Puget Sound stocks except Skagit and Snohomish coho are less than the maximum required by the FMP matrix in all Alternatives when 2020 projected marine impacts are combined with the 2019 pre-season modeled impacts for Puget Sound fisheries. In Alternative I under the MT treaty troll quotas, the Skagit coho total exploitation rate of 35.5 percent exceeds the 35 percent limit required by the FMP matrix. The Snohomish total

exploitation rate ranges from 22.9 percent to 25.1 percent, exceeding the 20 percent limit required by the FMP in all Alternatives. Exploitation rates on Snohomish coho in Council Area fisheries range from 3.0 percent to 0.4 percent across each of the Alternatives. Snohomish coho, recently designated as overfished, currently meets the criteria for ‘not overfished/rebuilding’ status. As part of the rebuilding plan, a buffered  $S_{MSY}$  is in place, however, for 2020 the abundance forecast is below the critical/low breakpoint, limiting the allowable total exploitation rate to 20 percent. Shaping of the State and Tribal inside fisheries will occur during the North of Falcon process, and ocean fisheries may require further shaping before final management measures are adopted in order to comply with the FMP limits.

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

### **8.1.3 Pink Salmon**

Pink salmon runs occur in odd-numbered years in waters under Council jurisdiction and will not be an important management consideration in 2020.

### **8.1.4 Summary of Environmental Impacts on Target Stocks**

Stock forecasts for some Canadian Chinook and coho stocks, Oregon Coast Chinook stocks, and the actual PST limits on Canadian AABM Chinook fisheries are not known at this time, and preliminary values have been used in the analyses presented in this report. These forecasts and limits are expected to be available prior to the April Council meeting. Negotiations in the North of Falcon process will not be completed until the April Council meeting. These negotiations affect allocation of stock impacts primarily among inside fisheries (State, Tribal, recreational, various commercial sectors, etc.) but also between inside and ocean fisheries.

Environmental impacts on salmon stocks are assessed based on compliance with conservation objectives, ACLs, rebuilding plans, and ESA consultation standards. As noted in the description of the Alternatives (Tables 1, 2, and 3), if analyses using the updated values and the results of these negotiations do not result in compliance with FMP conservation objectives or ESA consultation standards, some Alternatives will not be viable and impacts in Council-area fisheries will need to be modified to comply with all applicable objectives and standards. If updated values and negotiations result in compliance with applicable objectives and standards, Council area fishery impacts would not increase; therefore, the analysis of effects would include the upper bound of a reasonable range of effects under the Alternatives considered for 2020 Council area ocean salmon fisheries.

#### **8.1.4.1 Targeted Salmon Stocks**

Based on current assumptions regarding Canadian, Alaskan, and inside fishery impacts, all target salmon stocks (non-ESA listed) meet their FMP conservation objectives under Alternatives I, II, and III with the exception of Snohomish coho in all Alternatives and Skagit coho in Alternative I under the MT treaty troll quotas (Tables 5a and 5b). Impacts on these stocks in Council area fisheries range from 4.1 percent to 0.6 percent for Skagit coho and from 3.0 percent to 0.4 percent for Snohomish coho, and there appears to be sufficient flexibility within Council and inside area fisheries as a whole to comply with requirements of the FMP.

#### **8.1.4.2 ESA Listed Salmon Stocks**

Based on current assumptions regarding Canadian and inside fishery impacts, all ESA listed salmon stocks meet their ESA consultation standards under Alternatives II and III (Tables 5a and 5b).



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

## 8.2 *Socioeconomics*

In general, Council-area ocean salmon fisheries are managed to meet conservation objectives for stocks that are expected to achieve optimum yields while minimizing impacts on depressed stocks. While analysis of biological impacts is organized around salmon stocks that spawn in particular rivers, socioeconomic impacts under the regulatory alternatives are analyzed by ocean fishery management areas as described in the Salmon FMP. Although most stocks range across several areas, the abundance of individual stocks varies by time and area, thus the use of management areas facilitates more optimal management of each stock than would be possible with coastwide regulations. From north to south, the fishery management areas are: (1) from the U.S./Canada border to Cape Falcon (45°46' N. lat.), which is on the Oregon coast south of the Columbia River mouth; (2) between Cape Falcon and Humbug Mountain (42°40' N. lat.) on Oregon's southern coast; (3) the Oregon KMZ, which covers ocean waters from Humbug Mountain in southern Oregon to the Oregon/California border (42° N. lat.); (4) the California KMZ, which includes the area from the Oregon/California border to Horse Mountain (40°05' N. lat.) in northern California; (5) from Horse Mountain to Point Arena (38°57' N. lat.) in Mendocino County; (6) from Point Arena to Pigeon Point (37°11' N. lat.) north of Santa Cruz; and (7) from Pigeon Point to the U.S./Mexico border. There are also numerous subdivisions within these areas that are used to further balance stock conservation and harvest allocation needs. The following analysis of impacts on users of the resource and fishing communities is organized around the seven broad management areas. Figure 3 provides a map of the boundaries of these areas, also showing the main salmon ports.

Tribal ocean fisheries (including Washington State statistical area 4B) occur only in the area north of Cape Falcon. The Lower Elwha Klallam, Jamestown S'Klallam, Port Gamble S'Kallam, Makah, Quileute, Hoh, and Quinault Tribes all have fishery areas in the northern part of the area north of Cape Falcon (Tables 3a and 3b). Other federally-recognized tribes participate in in-river fisheries.

The Review of 2019 Ocean Salmon Fisheries (PFMC 2020a) provides an historical description of the salmon fishery affected environment. In addition to stock status assessments, the document reports socioeconomic impacts of historical fisheries and analyzes the current socioeconomic status of West Coast salmon fisheries. For the purpose of characterizing the socioeconomic impact of non-tribal Council-area ocean salmon fisheries, commercial exvessel value, recreational fishing trips, and community level personal income impacts resulting from both commercial and recreational fishing activities are used.

The short-term economic effects of the regulatory Alternatives for non-Indian fisheries are shown in Tables 9a, 9b, 10a and 10b. Tables 9a and 9b show projected commercial troll impacts expressed in terms of estimated potential exvessel value by catch area. Tables 10a and 10b show projected recreational fisheries impacts in terms of the number of projected angler-trips and community personal income impacts associated with those activities by port area. Note that exvessel values shown under the Alternatives for the commercial troll fishery in Tables 9a and 9b and income impact values shown for the recreational fishery in Tables 10a and 10b are not directly comparable. More directly comparable measures of short-term economic impacts from commercial and recreational salmon fisheries appear in Figures 1a, 1b, 2a, and 2b, which show estimated community income impacts under the respective sets of commercial troll and recreational fishery Alternatives, compared to historical impacts in real (inflation-adjusted) dollars. Both commercial and recreational estimates provided in these figures are based on landing ports. In general, income impacts are estimates of the amount of income generated by the economic linkages associated with a particular activity (see Chapter IV of the Review of 2019 Ocean Salmon Fisheries for additional

description of income impact estimates). Income impacts are a measure of relative economic activity. Differences in income impacts between an Alternative and the value for the 2019 fishery indicate the expected impact of the Alternative compared with not taking action, (i.e., if 2019 regulations were to remain in place). While reductions in income impacts associated with an activity may not necessarily reflect net losses, they are likely to indicate losses to businesses and individuals in a community that depends on that activity for their livelihood.

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

Exvessel revenues in Tables 9a and 9b are based on estimated harvest by catch area while commercial income impacts in Figures 1a and 1b are based on projected deliveries by landing area. Historically, there has been a divergence between these two measures. The difference is due to salmon caught in certain catch areas being delivered to ports in neighboring catch areas. In an attempt to account for this effect and assign income impacts to the “correct” landing area, adjustments are made based on historical patterns. The patterns are typically inferred from the most recent year’s catch and landings data. For example, 2019 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 Point Arena and Pigeon Point to landing ports in the Fort Bragg region, and (4) caught south of Pigeon Point to landing ports in the San Francisco region, among others.

The expected harvest levels used to model commercial fishery impacts are taken from Tables 6a and 6b. Estimated harvests do not include relatively small amounts occurring in SWO fisheries off central and southern Oregon as these fisheries are not expected to be prosecuted in 2020. These total harvest estimates combined with the prior year’s average Chinook weights per fish and exvessel prices per pound were assumed to be the best indicators of expected revenues in the coming season. Coastwide average Chinook weight per fish in 2019 was approximately 15 percent below the prior year and the recent five-year average; while coastwide average Chinook exvessel prices in 2019 were 21 percent lower than the prior year and the lowest in inflation-adjusted terms since 2014. If this year’s actual average weight per fish or exvessel prices diverge significantly from what was observed last year, then salmon exvessel revenues and resulting commercial fisheries income impacts projected in this document may prove to be correspondingly biased.

Fishing effort estimates for the recreational fishery south of Cape Falcon are based on measures developed by the STT for modeling biological impacts. STT estimates for south of Cape Falcon use multi-year averages to predict effort for the coming year. Consequently, if the multi-year average for a particular time period and area happens to be higher than last year’s effort level, then the model may forecast an increase in effort for the coming year even though management measures may actually be relatively more constraining, or *vice-versa*. Estimated recreational effort does not include the relatively small amounts that often occur in state waters only (SWO) fisheries off central and southern Oregon as these fisheries are not expected to be prosecuted in 2020. Recreational fishery effort north of Cape Falcon was estimated using historical CPUE estimates (“success rates”) applied to salmon quotas and expected harvest levels under the

Alternatives. Projections of recreational catch north of Cape Falcon were made by multiplying the proposed quotas for the two species under each Alternative by the historic ratios of actual catch to the actual quotas. Effort and economic impacts were then estimated by summing recent year weighted average coho and Chinook angler success rates multiplied by the projected coho and Chinook catch under each Alternative. Unless otherwise noted, the economic effects of the commercial and recreational fisheries Alternatives summarized below are compared in terms of estimated community income impacts.

### **8.2.1 Alternative I**

Under Alternative I, overall coastwide community personal income impacts from commercial salmon fisheries are projected to be 31 percent below last year's (2019) level and one percent below the recent (2015-2019) inflation-adjusted average. Coastwide income impacts from recreational fishing are projected to be 10 percent below last year's level but eight percent above the 2015-2019 inflation-adjusted average.

Commercial fishery income impacts north of Cape Falcon are projected to be 25 percent above last year but 16 percent below the 2015-2019 inflation-adjusted average.

South of Cape Falcon, overall commercial fishery income impacts are projected to fall below last year's level by 36 percent but exceed the 2015-2019 inflation-adjusted average by three percent.

A mix of effects is projected for areas south of Cape Falcon, with areas between Cape Falcon and Humbug Mountain, between Humbug Mountain and the Oregon/California border, and between Horse Mountain and Point Arena projected to see increases of 69 percent, 20 percent and 86 percent, respectively, compared with last year's levels. However, areas between Point Arena and Pigeon Point and south of Pigeon Point would see projected decreases of 48 percent and 60 percent, respectively, compared with last year; and areas between the Oregon/California border and Horse Mountain would be closed, i.e., a decrease of 100 percent. The areas south of Cape Falcon would see projected changes in commercial fishery income impacts compared to the 2015-2019 inflation-adjusted average ranging from an increase of 12 percent (Point Arena to Pigeon Point) to a decrease of 100 percent (Oregon/California border to Horse Mountain).

Projected income impacts from recreational fisheries north of Cape Falcon are 59 percent below last year and 56 percent below the 2015-2019 inflation-adjusted average.

Overall recreational fishery income impacts south of Cape Falcon are projected to be 11 percent above last year's and 38 percent above the 2015-2019 inflation-adjusted average. Recreational income impacts are projected to be above last year's levels in four of the six areas south of Cape Falcon, i.e., except between Cape Falcon and Humbug Mountain and between Point Arena and Pigeon Point. Recreational fishery income impacts are projected to be above the 2015-2019 inflation-adjusted average in all areas south of Cape Falcon, with increases ranging from four percent for areas between Point Arena and Pigeon Point to 222 percent for areas south of Pigeon Point.

Under Alternative I overall coastwide income impacts for combined non-Indian commercial and recreational salmon fisheries are projected to be 20 percent below last year's level but four percent above the 2015-2019 inflation-adjusted average. Combined income impacts north of Cape Falcon are projected to be 41 percent below last year's level and 44 percent below the 2015-2019 inflation-adjusted average. In aggregate, combined income impacts south of Cape Falcon are projected to be 15 percent below last year's level but 21 percent above the 2015-2019 inflation-adjusted average.

Tribal ocean fisheries north of Cape Falcon would be allocated 30,000 Chinook and 12,500 coho for ocean area harvest under the QTA alternative, versus 45,000 chinook and 30,000 coho under the MT alternative. These compare with the 2019 actual allocation of 35,000 Chinook and 55,000 coho.

## **8.2.2 Alternative II**

Under Alternative II, overall coastwide community personal income impacts from commercial salmon fisheries are projected to be 32 percent below last year's (2019) level and two percent below the recent (2015-2019) inflation-adjusted average. Coastwide income impacts from recreational fishing are projected to be 13 percent below last year's level but three percent above the 2015-2019 inflation-adjusted average.

Commercial fishery income impacts north of Cape Falcon are projected to be six percent below last year and 37 percent below the 2015-2019 inflation-adjusted average.

South of Cape Falcon, overall commercial fishery income impacts are projected to fall below last year's level by 34 percent but exceed the 2015-2019 inflation-adjusted average by six percent.

Mostly negative commercial fisheries income impacts compared with last year's levels are projected for areas south of Cape Falcon, i.e., except for the areas between Cape Falcon and Humbug Mountain and between Humbug Mountain and the Oregon/California border, where increases of 71 percent and six percent, respectively, are projected. The other four areas south of Cape Falcon would see projected decreases in commercial fisheries income impacts compared with last year ranging from 89 percent (Horse Mountain to Point Arena) to 36 percent (Oregon/California border to Horse Mountain). Three of the six areas south of Cape Falcon would see projected decreases in commercial fishery income impacts compared to the 2015-2019 inflation-adjusted average, ranging from a 30 percent decrease (Humbug Mountain to Oregon/California border) to 95 percent (Horse Mountain to Point Arena). The other three areas south of Cape Falcon would see projected increases in commercial fishery income impacts compared to the 2015-2019 inflation-adjusted average ranging from three percent (Cape Falcon to Humbug Mountain) to 28 percent (Point Arena to Pigeon Point).

Projected income impacts from recreational fisheries north of Cape Falcon are 69 percent below last year and 67 percent below the 2015-2019 inflation-adjusted average.

Overall recreational fishery income impacts south of Cape Falcon are projected to be 10 percent above last year and 37 percent above the 2015-2019 inflation-adjusted average. Recreational income impacts are projected to be above last year's level in three of the six areas south of Cape Falcon, with increases of 35 percent for areas between Humbug Mountain to Oregon/California border, 137 percent for areas from Horse Mountain to Point Arena, and 72 percent for areas south of Pigeon Point. In the other three areas south of Cape Falcon, projected declines from the 2015-2019 inflation-adjusted average range from three percent (Oregon/California border to Horse Mountain) to 27 percent (Cape Falcon to Humbug Mountain). Recreational income impacts are projected to be above the 2015-2019 inflation-adjusted average in all six areas south of Cape Falcon, with increases ranging from four percent for areas between Point Arena and Pigeon Point to 220 percent for areas south of Pigeon Point.

Under Alternative II overall coastwide income impacts for combined non-Indian commercial and recreational salmon fisheries are projected to be 22 percent below last year's level but one percent above the 2015-2019 inflation-adjusted average. Combined income impacts north of Cape Falcon are projected to be 56 percent below last year's level and 58 percent below the 2015-2019 inflation-adjusted average. In

aggregate, combined income impacts south of Cape Falcon are projected to be 14 percent below last year's level but 22 percent above the 2015-2019 inflation-adjusted average.

Tribal ocean fisheries north of Cape Falcon would be allocated 25,000 Chinook and 10,000 coho for ocean area harvest under the QTA alternative, versus 35,000 chinook and 22,500 coho under the MT alternative. These compare with the 2019 actual allocation of 35,000 Chinook and 55,000 coho.

### **8.2.3 Alternative III**

Under Alternative III, overall coastwide community personal income impacts from commercial salmon fisheries are projected to be 49 percent below last year's (2019) level and 27 percent below the recent (2015-2019) inflation-adjusted average. Coastwide income impacts from recreational fishing are projected to be 25 percent below last year's level and 11 percent below the 2015-2019 inflation-adjusted average.

South of Cape Falcon, overall commercial fishery income impacts are projected to fall below last year's level by 45 percent and below the 2015-2019 inflation-adjusted average by 11 percent.

The commercial fishery north of Cape Falcon would be closed thus the associated commercial fishery income impacts north of Cape Falcon are projected to be 100 percent below last year and the 2015-2019 inflation-adjusted average.

Compared with last year's levels, negative commercial fisheries income impact effects are projected for the areas south of Cape Falcon, except for the area between Cape Falcon and Humbug Mountain, where an increase of 30 percent is projected. The other five areas south of Cape Falcon would see projected decreases in commercial fisheries income impacts compared with last year ranging from 26 percent (Humbug Mountain to Oregon/California border) to 100 percent (Oregon/California border to Horse Mountain). One area south of Cape Falcon, the area south of Pigeon Point, would see a projected increase in commercial fishery income impacts of 76 percent compared to the 2015-2019 inflation-adjusted average. The other five areas south of Cape Falcon would see projected decreases in commercial fishery income impacts compared to the 2015-2019 inflation-adjusted average ranging from three percent (Point Arena to Pigeon Point) to 100 percent (Oregon/California border to Horse Mountain).

The recreational fishery north of Cape Falcon would also be closed; thus the associated income impacts from recreational fisheries north of Cape Falcon are projected to be 100 percent below last year the 2015-2019 inflation-adjusted average.

Overall recreational fishery income impacts south of Cape Falcon are projected to be five percent above last year and 31 percent above the 2015-2019 inflation-adjusted average. Recreational income impacts are projected be above last year's level in two areas south of Cape Falcon, with increases of 137 percent for areas from Horse Mountain to Point Arena, and 71 percent for areas south of Pigeon Point. Projected declines from last year's level in the other four areas south of Cape Falcon range from 10 percent (Point Arena to Pigeon Point) to 61 percent (Oregon/California border to Horse Mountain). Recreational income impacts are projected be above the 2015-2019 inflation-adjusted average in three of six areas south of Cape Falcon, with increases ranging from 30 percent for Cape Falcon to Humbug Mountain to 218 percent for areas south of Pigeon Point; and decreases ranging from two percent for Point Arena to Pigeon Point to 62 percent for areas between Humbug Mountain and the Oregon/California border.

Under Alternative III, overall coastwide income impacts for combined non-Indian commercial and recreational salmon fisheries are projected to be 37 percent below last year's level and 18 percent below the 2015-2019 inflation-adjusted average. Combined income impacts north of Cape Falcon are projected to be 100 percent below last year's level and the 2015-2019 inflation-adjusted average. In aggregate,

combined income impacts south of Cape Falcon are projected to be 22 percent below last year's level but 11 percent above the 2015-2019 inflation-adjusted average.

Tribal ocean fisheries north of Cape Falcon would be allocated 20,000 Chinook and zero coho for ocean area harvest under the QTA alternative, versus 25,000 chinook and 15,000 coho under the MT alternative. These compare with the 2019 actual allocation of 35,000 Chinook and 55,000 coho..

#### **8.2.4 Summary of Impacts on the Socioeconomic Environment**

The commercial salmon fishery Alternatives are projected to generate coastwide income impacts ranging from 31 percent below (Alternative I) to 49 percent below (Alternative III) last year's levels. These levels also represent corresponding declines ranging from one percent to 27 percent below the recent (2015-2019) inflation-adjusted averages.

North of Cape Falcon, commercial salmon fisheries income impacts are projected to be above last year under Alternative I but below last year under Alternative II and Alternative III, and below the 2015-2019 inflation-adjusted average under all three alternatives. Compared with last year, areas south of Point Arena and the area from the Oregon/California border to Horse Mountain would see decreases under all three alternatives, while the area between Cape Falcon and Humbug Mountain would see increases under all three Alternatives. The remaining areas would see increase or decreases in commercial salmon fishery income impacts depending on the Alternative. The area north of Cape Falcon would be closed to commercial fishing under Alternative III, and Oregon/California border to Horse Mountain would be closed to commercial fishing under Alternative I and Alternative III.

Relative to the other alternatives, projections for Alternative III show the most negative commercial fisheries income impacts overall and for six of the seven management areas, i.e., for all areas except south of Pigeon Point. Projections for Alternative I show the most negative commercial fisheries income impacts for two of the seven management areas: south of Pigeon Point and Oregon/California border to Horse Mountain (tie with Alternative III). Projections show Alternative II with the most negative commercial fisheries income impacts for one area: Horse Mountain to Point Arena (tie with Alternative III).

Total coastwide income impacts from recreational salmon fisheries are projected to be lower than last year under all three alternatives, with decreases of 10 percent under Alternative I, 13 percent under Alternative II, and 25 percent under Alternative III. Compared with the 2015-2019 inflation-adjusted average, a decrease in coastwide recreational fishery income impacts is projected under Alternative III (11 percent), but relative increases are projected under Alternative I (eight percent) and Alternative II (three percent). Compared with last year, three management areas would see projected decreases in recreational fishery income impacts under all three alternatives: north of Cape Falcon, Cape Falcon to Humbug Mountain, and Point Arena to Pigeon Point. Compared with the 2015-2019 inflation-adjusted average, six of seven areas (i.e., all areas except north of Cape Falcon) are projected to see increases in recreational fishery income impacts under Alternative I and Alternative II. Under Alternative III, three areas would see projected increases in recreational fishery income impacts relative to the 2015-2019 inflation-adjusted average: Cape Falcon to Humbug Mountain, Horse Mountain to Point Arena, and south of Pigeon Point.

Total coastwide income impacts from combined non-Indian commercial and recreational salmon fisheries are projected to be lower than last year under all three alternatives, i.e., lower by 20 percent under Alternative I, 22 percent under Alternative II, and 37 percent under Alternative III. Combined coastwide income impacts are projected to be lower than the 2015-2019 inflation-adjusted average by 18 percent under Alternative III, but slightly above the 2015-2019 inflation-adjusted average under Alternative I (four percent) and Alternative II (one percent). Three of seven management areas (Cape Falcon to Humbug Mountain, Humbug Mountain to the Oregon/California border, and Horse Mountain to Point Arena) would

see projected increases in combined commercial and recreational salmon fishery income impacts compared with last year under both Alternative I and Alternative II, and two of seven management areas are projected to see increases compared to last year under Alternative III (Horse Mountain to Point Arena, and south of Pigeon Point).

Compared with the 2015-2019 inflation-adjusted average, five of seven management areas are projected to see increases in combined commercial and recreational salmon fishery income impacts under Alternative I (Cape Falcon to Humbug Mountain, Humbug Mountain to the Oregon/California border, Horse Mountain to Point Arena, Point Arena to Pigeon Point, and south of Pigeon Point), three areas under Alternative II (Cape Falcon to Humbug Mountain, Point Arena to Pigeon Point, and south of Pigeon Point), and two areas under Alternative III (Cape Falcon to Humbug Mountain, and south of Pigeon Point).

Under the QTA alternatives, ocean tribal fisheries occurring north of Cape Falcon would be allocated a maximum of 30,000 Chinook and 12,500 coho under Alternative I, and a minimum of 20,000 Chinook and zero coho under Alternative III. Under the MT alternatives, ocean tribal fisheries occurring north of Cape Falcon would be allocated a maximum of 45,000 Chinook and 30,000 coho under Alternative I, and a minimum of 25,000 Chinook and 15,000 coho under Alternative III.

### **8.3 Non-target Fish Species**

Prior NEPA analyses have considered the effects of the ocean salmon fisheries on non-target fish species. Since then, ocean salmon fisheries have not changed substantially in terms of season length, areas, depth, bag limits, etc. Nor is there any new information to suggest that the incidental nature of encounters of non-target species in ocean salmon fisheries has changed. Therefore, conclusions from previous environmental analyses indicating that effects on non-target fish species are low and not significant are still applicable, as discussed below. The differences between the Alternatives for the 2020 salmon fishery are not discernible with respect to their effect on non-target fish species.

Impacts to groundfish stocks from salmon troll fisheries continue to be managed as part of the open access groundfish fishery sector, and are at similar levels compared to recent years. Previous environmental analysis concluded that the amount of groundfish taken incidentally in the salmon fishery is very low and is not substantially altered by changes in the salmon fishery. (NMFS 2003; Appendix B). The 2020 ocean salmon regulation Alternatives are not expected to differ substantially from fisheries analyzed previously with respect to groundfish impacts; therefore, effects from the Alternatives to groundfish stocks are not significant.

Impacts to Pacific halibut from salmon troll fisheries continue to be managed under limits established through the International Pacific Halibut Commission (IPHC) process and under the Area 2A (Council area) catch sharing plan. Previous environmental analysis stated that data on the commercial segment of salmon fisheries show the co-occurrence rates for salmon and halibut, coastal pelagic species, highly migratory species, and non-Council managed fish species are low (NMFS 2003; Appendix B). The 2020 ocean salmon regulation Alternatives include Pacific halibut landing restrictions within the range enacted in the past, and are not expected to differ substantially from earlier analyses with respect to Pacific halibut impacts; therefore, effects from the Alternatives to Pacific halibut are not significant. Likewise, there are no changes to the salmon fishery for 2020 that would change impacts to other non-salmon fish species compared to previous analyses, therefore, effects from the Alternatives to these species are not expected to be significant.

### **8.4 Marine Mammals**

The commercial salmon troll fisheries off the coasts of Washington, Oregon, and California are classified as Category III fisheries, indicating a remote or no likelihood of causing incidental mortality or serious

injury to marine mammals (83 FR 5349). Recreational salmon fisheries use similar gear and techniques as the commercial fisheries and are assumed to have similar encounter rates and impacts. The non-ESA listed marine mammal species that are known to interact with ocean salmon fisheries are California sea lion and harbor seals. Populations of both these species are at stable and historically high levels. There is no new information to suggest that the nature of interactions between California sea lions or harbor seals in ocean salmon fisheries has changed since the Category III determination. Therefore, the impacts from the 2020 salmon regulation Alternatives to non-ESA listed marine mammals are not expected to be significant, and there is no discernible difference between the effects of the Alternatives on these resources.

### **8.5 ESA Listed Species**

There is no record of injury or mortality of Guadalupe fur seals in Pacific Coast salmon fisheries (NMFS 2003; Appendix B). No sea turtles have been reported taken by the ocean salmon fisheries off Washington, Oregon, or California, and NMFS has determined that commercial fishing by Pacific Coast salmon fisheries would pose a negligible threat to Pacific turtle species (NMFS 2003; Appendix B). There is no discernible difference between the effects of the alternatives on these resources.

Salmon fisheries have the potential to affect Southern Resident killer whales by removing Chinook salmon, an important prey species for the whales. NMFS issued a biological opinion evaluating the effects of the Pacific Coast salmon fisheries on the Southern Resident killer whale distinct population segment in 2009 (NMFS 2009; Appendix B); this opinion concluded that ocean salmon fisheries were not likely to jeopardize the continued existence of the Southern Resident killer whales or adversely modify their critical habitat. NMFS completed a five-year review of the Southern Resident killer whale ESA listing in September 2016. There is new information that indicates Chinook salmon abundance may be related to Southern Resident killer whale population trends. NMFS is reassessing the effects of salmon fisheries in light of this new information, and reinitiated consultation on the effects of Council fisheries in 2019. At the March 2020 Council meeting, NMFS outlined the process for consultation and guidance under [Agenda Item E.5.b, NMFS Report 1](#).

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

### **8.6 Seabirds**

The types of vessels used in ocean salmon fisheries and the conduct of the vessels are not conducive to collisions or the introduction of rats or other non-indigenous species to seabird breeding colonies. Other types of accidental bird encounters are a rare event for commercial and recreational ocean salmon fisheries (NMFS 2003; Appendix B). Therefore, there are no significant impacts expected on seabirds from the Alternatives analyzed in this EA, and there is no discernible difference between the effects of the Alternatives on seabirds.

### **8.7 Biodiversity and Ecosystem Function**

The removal of adult salmon by the ocean fisheries is not considered to significantly affect the lower trophic levels or the overall marine ecosystem because salmon are not the only or primary predator in the marine environment (NMFS 2003; Appendix B). Therefore, no significant impacts are expected on biodiversity or ecosystem function from the Alternatives analyzed in this EA, and there is no discernible difference between the effects of the Alternatives on these resources.



## 8.8 *Ocean and Coastal Habitats*

Council Area salmon fisheries do not employ bottom contact gear, and there is no evidence of direct gear effects on fish habitat from Council-managed salmon fisheries on essential fish habitat (EFH) for salmon or other managed species (PFMC 2006; Appendix B). Critical habitat for ESA listed salmon does not include Council area ocean water. Because Council area salmon fisheries are conducted at sea and without bottom contact gear, there is no interaction with unique geographic characteristics or other cultural, scientific, or historical resources such as those that might be listed on the National Register of Historical Places.

## 8.9 *Public Health and Safety*

Fisheries management can affect safety if, for example, season openings make it more likely that fishermen will have to go out in bad weather because fishing opportunities are limited. The Salmon FMP, however, has provisions to adjust management measures if unsafe weather affected fishery access. The Alternatives for 2020 ocean salmon regulations have season structures similar to those employed in previous salmon seasons and are not expected to result in any significant increase in the risk to human health or safety at sea (PFMC 2006; Appendix B). There are also no discernible differences between the effects of the Alternatives on the risk to human health or safety at sea.

## 8.10 *Cumulative Impacts*

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

### **8.10.1 Consideration of the Effected Resource**

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

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

### **8.10.2 Geographic Boundaries**

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

### **8.10.3 Temporal Boundaries**

The temporal scope of past and present actions for the affected resources is primarily focused on actions that have occurred after framework FMP implementation (1984). The temporal scope of future actions for all affected resources extends about five years into the future. This period was chosen because the dynamic

nature of resource management and lack of information on future projects make it very difficult to predict impacts beyond this timeframe with any certainty.

#### **8.10.4 Past, Present, and Reasonably Foreseeable Future Actions**

##### ***Fishery Actions***

The Council sets management measures for ocean salmon fisheries annually based on stock forecasts and in accordance with conservation objectives set in the FMP and guidance provided by NMFS for managing impacts to ESA listed stocks. The Council manages ocean salmon fisheries through an intensive preseason analysis process to shape salmon fisheries impacts on salmon stocks within the parameters of the FMP conservation measures and ESA requirements.

Fisheries outside of the Council's jurisdiction also impact the Council-area salmon fishery. The Council considers fisheries managed by the states and treaty Indian tribes in the North of Falcon management process and Columbia River fisheries managed under U.S. v. Oregon Management Plan, as well as obligations for fisheries off Alaska and Canada under the Pacific Salmon Treaty (PFMC and NMFS 2014). Additionally, the Council and NMFS manage ocean salmon fisheries inseason to keep fisheries impacts within the constraints set preseason. The Council also conducts annual methodology reviews to improve models and other tools for assessing salmon stocks.

##### ***Non-Fishing Related Actions***

Because salmon spend part of their lifecycle in fresh water, they are more vulnerable to a broad range of human activities (since humans spend most of their time on land) that affect the quantity and quality of these freshwater environments. These effects are generally well known and diverse. They include physical barriers to migration (dams), changes in water flow and temperature (often a secondary effect of dams or water diversion projects), and degradation of spawning environments (such as increased silt in the water from adjacent land use). Non-fishing activities in the marine environment can introduce chemical pollutants and sewage; and result in changes in water temperature, salinity, dissolved oxygen, and suspended sediment which poses a risk to the affected resources. Human-induced non-fishing activities tend to be localized in nearshore areas and marine project areas. When these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability tends to reduce the tolerance of affected species to the impacts of fishing effort. Mitigation through regulations that would reduce fishing effort could negatively impact human communities. The overall impact to the affected species and their habitats on a population level is unknown, but likely neutral to low negative, since a large portion of these species have a limited or minor exposure to the localized non-fishing perturbations.

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

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

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

Anomalously warm sea surface temperatures in the northeast Pacific Ocean developed in 2013 and continued to persist through much of 2015; this phenomenon was termed "the Blob." During the persistence of the Blob, distribution of marine species was affected (e.g., tropical and subtropical species were documented far north of their usual ranges), marine mammals and seabirds starved, and a coastwide algal bloom that developed in the summer of 2015 resulted in domoic acid poisoning of animals at various trophic levels, from crustaceans to marine mammals. In 2015-2016, a very strong El Niño event disrupted the Blob, which was declared "dead" by climatologists in December 2015. The extent of the impact of The Blob on salmon and salmon fisheries has not yet been fully determined. It is also uncertain if or when environmental conditions would cause a repeat of this event, although evidence of resurgent blob-like conditions emerged in late 2019. NMFS' Northwest and Southwest Fisheries Science Centers presented information to the Council indicating that the broods that will contribute to 2020 harvest and escapement encountered generally poor to intermediate ocean conditions in the California Current Ecosystem.

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

In addition, changes in river flows and flow variability may affect population growth of anadromous fishes. Ward et al. (2015) found that increases in variability in freshwater flows may have a more negative effect than any other climate signal included in their model. Some climate change models predict that in the Pacific Northwest, there will be warmer winters and more variable river flows, which may affect the ability of anadromous fishes to recover in the future (Ward et al. 2015). However, our ability to predict future impacts on a large-scale ecosystem stemming from climate forcing events remains uncertain.

### **8.10.5 Magnitude and Significance of Proposed Action**

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

#### **8.10.5.1 Fishery and Fish Resources**

Past, present, and reasonably foreseeable future actions that affect the salmon fishery and fish resources are considered annually when the Council sets management measures for ocean salmon fisheries based on stock forecasts and in accordance with conservation objectives set in the FMP and guidance provided by NMFS for managing impacts to ESA-listed stocks. The Council also considers fisheries managed by the states and treaty Indian tribes in the North of Falcon management process and Columbia River fisheries managed under *U.S. v. Oregon* Management Plan, as well as obligations under the Pacific Salmon Treaty (PFMC and NMFS 2014). Additionally, the Council and NMFS manage ocean salmon fisheries inseason to keep fisheries impacts within the constraints set preseason. The Council also conducts annual methodology reviews to improve models and other tools for assessing salmon stocks. Therefore, the magnitude and significance of cumulative effects, including the proposed action, on the salmon fishery and fish resources are expected to be low positive and not significant.

#### **8.10.5.2 Protected Resources**

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

#### **8.10.5.3 Biodiversity/Ecosystem Function and Habitats**

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

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

#### *8.10.5.4 Socioeconomic Environment*

Each year the Council evaluates the socioeconomic impact of past salmon fisheries in the stock assessment and fishery evaluation document (e.g., PFMC 2020a) and also evaluates foreseeable future impacts in the annual preseason reports; these documents are also used as the basis for the NEPA analysis for the annual management measures. The magnitude and significance of cumulative effects, including the proposed action on the socioeconomic environment, is expected to be low positive, and not significant.

### **9.0 CONCLUSION**

This analysis has identified no significant environmental impacts that would result from the 2020 ocean salmon regulation Alternatives, from final regulations selected from within the range presented in these Alternatives.

## 10.0 LIST OF AGENCIES AND PERSONS CONSULTED

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

- November 14-20, 2019: **Pacific Fishery Management Council meeting**, Costa Mesa, California.
- January 21-24, 2020 **Salmon Technical Team (Review preparation)**, Portland, Oregon.
- February 18-21: **Salmon Technical Team (Preseason Report I preparation)**, Portland, Oregon.
- February 21: California Fish and Game Commission meeting, Sacramento, California.
- February 27: California Department of Fish and Wildlife public meeting, Santa Rosa, California.
- February 27: Oregon Ocean Salmon Industry Group meeting, Newport, Oregon.
- February 28: Washington Department of Fish and Wildlife public meeting, Olympia, Washington.
- March 4-10: **Pacific Fishery Management Council meeting**, Rohnert Park, California.
- March 20: Oregon Fish and Wildlife Commission meeting, Salem, Oregon.
- March 16: North of Falcon, Discussion of management objectives and preliminary fishery proposals for sport and commercial fisheries in Puget Sound and coastal Washington, with limited discussion of the Columbia River and ocean fisheries (on-line meeting)
- March 23-24: **Public hearings on management options** (on-line meetings with focused discussions in Washington; Oregon; California).
- March 31 North of Falcon, Puget Sound forum (on-line meeting).
- April 1: North of Falcon, Ocean fisheries and Columbia River fisheries, TBD Ridgefield, Washington or on-line meeting.
- April 4-10: **Pacific Fishery Management Council meeting**, (on-line meeting)
- April 15-16: California Fish and Game Commission meeting, Sacramento, California.
- April 17 Oregon Fish and Wildlife Commission meeting, Reedsport, Oregon.
- April 24: Washington Fish and Wildlife Commission meeting, teleconference.

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

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

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

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

## 11.0 REFERENCES

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- Pacific Fishery Management Council (PFMC). 2006. Environmental assessment for the proposed 2006 management measures for the ocean salmon fishery managed under the Pacific Coast salmon plan. Pacific Fishery Management Council, Portland, Oregon.
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- PFMC. 2020a. Review of 2019 ocean salmon fisheries. Pacific Fishery Management Council, Portland, Oregon.
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- PFMC. 2020c. Ad-Hoc Southern Resident Killer Whale Workgroup FINAL DRAFT Risk Assessment. February 2020. 164 p. Available: <https://www.pcouncil.org/documents/2020/02/e-3-a-srkw-workgroup-report-1-electronic-only.pdf/> (website accessed March 17, 2020).
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TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries - Council adopted. (Page 1 of 13)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
North of Cape Falcon	North of Cape Falcon	North of Cape Falcon
Supplemental Management Information	Supplemental Management Information	Supplemental Management Information
Model #: Coho2012, Chinook1020	Model #: Coho2013, Chinook1120	Model #: Coho2014, Chinook1220
<p>1. Overall non-Indian TAC: 60,000 Chinook and 35,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Non-Indian commercial troll TAC: 30,000 Chinook and 5,600 marked coho.</p> <p>3. Trade: May be considered at the April Council meeting.</p> <p>4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.</p>	<p>1. Overall non-Indian TAC: 45,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Non-Indian commercial troll TAC: 22,875 Chinook and 2,500 marked coho.</p> <p>3. Trade: Commercial troll traded 1,500 marked coho to the recreational fishery for 375 Chinook.</p> <p>4. Same as Alternative 1</p>	Closed
<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>May 6 through the earlier of June 28, or 20,000 Chinook. No more than 7,390 of which may be caught in the area between the U.S./Canada border and the Queets River, and no more than 5,450 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 75 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 75 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6).</p> <p><i>(Continued next page)</i></p>	<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>May 6 through the earlier of June 30, or 11,500 Chinook. No more than 4,250 of which may be caught in the area between the U.S./Canada border and the Queets River, and no more than 3,140 of which may be caught in the area between Leadbetter Pt. and Cape Falcon (C.8).</li> </ul> <p><u>During May 6-12 the following applies:</u></p> <p>In the area between the U.S./Canada border and the Queets River, the landing and possession limit is 100 Chinook per vessel per open period (C.1, C.6).</p> <p>In the area between the Queets River and Leadbetter Pt., the landing and possession limit is 200 Chinook per vessel per open period (C.1, C.6).</p> <p>In the area between Leadbetter Pt. and Cape Falcon, the landing and possession limit is 100 Chinook per vessel per open period (C.1, C.6).</p> <p><i>(Continued next page)</i></p>	<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>Closed</li> </ul> <p><i>(Continued next page)</i></p>



TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 2 of 13)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>U.S./Canada Border to Cape Falcon (continued)</b></p> <p>All salmon, except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).</p> <p>When it is projected that approximately 75% of the overall Chinook guideline has been landed, or approximately 75% of any of the individual Chinook subarea guidelines have been landed, inseason action will be considered to ensure the guideline is not exceeded.</p> <p>In 2021, the season will open May 1 for all salmon except coho consistent with preseason regulations as described for this area and subareas for May 6-June 30, 2020, including subarea salmon guidelines and weekly vessel limits. These regulations would apply from the opening of the fishery on May 1, 2021, until modified following Council review at its March and/or April 2021 meetings. Catch during this opening will be counted towards quotas set for this area and subareas at the April 2021 meeting.</p>	<p><b>U.S./Canada Border to Cape Falcon (continued)</b>  <u>During May 15-June 30 the following applies:</u></p> <p>Open five days per week (Fri.-Tue.) (C.1).</p> <p>In the area between the U.S./Canada border and the Queets River, the landing and possession limit is 50 Chinook per vessel per open period (Fri.-Tue.) (C.1, C.6).</p> <p>In the area between the Queets River and Leadbetter Pt., the landing and possession limit is 200 Chinook per open period (Fri.-Tue.) (C.1, C.6).</p> <p>In the area between Leadbetter Pt. and Cape Falcon, the landing and possession limit is 50 Chinook per vessel per open period (Fri.-Tue.) (C.1, C.6).</p> <p>For all open periods (May 6-June 30): All salmon, except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).</p> <p>When it is projected that approximately 50% of the overall Chinook guideline has been landed, or approximately 50% of any of the individual Chinook subarea guidelines have been landed, inseason action will be considered to ensure the guideline is not exceeded.</p> <p>In 2021, same as Alternative 1</p>	<p><b>U.S./Canada Border to Cape Falcon (continued)</b></p>

TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – <b>Council adopted.</b> (Page 3 of 13)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<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 10,000 Chinook or 5,600 coho (C.8).</li> </ul> <p>Open seven days per week. All salmon. Chinook minimum size limit of 28 inches total length. Coho minimum size limit of 16 inches total length (B, C.1). All coho must be marked with a healed adipose fin clip (C.8.d). No chum retention north of Cape Alava, Washington in August and September (C.4, C.7). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).</p> <p>In the area between the U.S./Canada border and the Queets River, the landing and possession limit is 75 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6).</p> <p>In the area between the Queets River and Leadbetter Pt., the landing and possession limit is 75 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 75 Chinook per vessel per landing week (Thurs.-Wed.) (C.1, C.6).</p> <p>Landing and possession limit of 20 marked coho per vessel per landing week (Thurs.-Wed.) (C.1).</p>	<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>July 3 through the earlier of September 29, or 11,375 Chinook or 2,500 coho (C.8).</li> </ul> <p>Open five days per week (Fri.-Tue.). All salmon. Chinook minimum size limit of 28 inches total length. Coho minimum size limit of 16 inches total length (B, C.1). All coho must be marked with a healed adipose fin clip (C.8.d). No chum retention north of Cape Alava, Washington in August and September (C.4, C.7). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).</p> <p>Landing and possession limit of 10 marked coho per vessel per open period (Fri.-Tue.) (C.1).</p>	<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>Closed</li> </ul>
<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 10, the Grays Harbor Control Zone (C.5). Vessels must land and deliver their salmon within 24 hours of any closure of this fishery.</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. Vessels may not land fish east of the Sekiu River or east of the Megler-Astoria bridge. <u>For delivery to Washington ports south of Leadbetter Point</u>, vessels must notify the Washington Department of Fish and Wildlife at 360-249-1215 prior to crossing the Leadbetter Point line with area fished, total Chinook, coho, and halibut catch aboard, and destination with approximate time of delivery. During any single trip, only one side of the Leadbetter Point line may be fished (C.11).</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. 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 541-867-0300 ext. 271 or sending notification via e-mail to nfallcon.trollreport@state.or.us. 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 south of the Queets River may not cross the Queets River line without first notifying WDFW at 360-249-1215 with area fished, total Chinook, coho, and halibut catch aboard, and destination (C.11).</p>		

TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 4 of 13)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
South of Cape Falcon	South of Cape Falcon	South of Cape Falcon
Supplemental Management Information	Supplemental Management Information	Supplemental Management Information
<ol style="list-style-type: none"> <li>1. Sacramento River fall Chinook spawning escapement of 228,346 hatchery and natural area adults.</li> <li>2. Sacramento Index exploitation rate of 51.7%.</li> <li>3. Klamath River recreational fishery allocation: 1,291 adult Klamath River fall Chinook.</li> <li>4. Klamath tribal allocation: 8,606 adult Klamath River fall Chinook.</li> <li>5. CA/OR share of Klamath River fall Chinook commercial ocean harvest: 60% / 40%.</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 California Fish and Game Commission.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sacramento River fall Chinook spawning escapement of 222,636 hatchery and natural area adults.</li> <li>2. Sacramento Index exploitation rate of 52.9%.</li> <li>3. Klamath River recreational fishery allocation: 1,285 adult Klamath River fall Chinook.</li> <li>4. Klamath tribal allocation: 8,568 adult Klamath River fall Chinook.</li> <li>5. CA/OR share of Klamath River fall Chinook commercial ocean harvest: 61% / 39%.</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 California Fish and Game Commission</li> </ol>	<ol style="list-style-type: none"> <li>1. Sacramento River fall Chinook spawning escapement of 234,075 hatchery and natural area adults.</li> <li>2. Sacramento Index exploitation rate of 50.5%.</li> <li>3. Klamath River recreational fishery allocation: 801 adult Klamath River fall Chinook.</li> <li>4. Klamath tribal allocation: 5,342 adult Klamath River fall Chinook.</li> <li>5. CA/OR share of Klamath River fall Chinook commercial ocean harvest: 58% / 42%.</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 California Fish and Game Commission</li> </ol>
<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>• April 15-30;</li> <li>• May 6-31;</li> <li>• June 6-30;</li> <li>• July 6-31;</li> <li>• August 1-24;</li> <li>• September 1-October 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).</p> <p>Beginning September 1, no more than 75 Chinook allowed per vessel per landing week (Thurs.-Wed.).</p> <p>In 2021, the season will open March 15 for all salmon except coho. Chinook minimum size limit of 28 inches total length (B, C.1). Gear and other restrictions same as in 2020 (C.2, C.3, C.4). This opening could be modified following Council review at its March 2021 meetings (C.8).</p>	<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>• April 15-30;</li> <li>• May 1-26;</li> <li>• June 6-30;</li> <li>• July 6-31;</li> <li>• August 1-25;</li> <li>• September 1-October 31 (C.9.a).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>	<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>• May 6-31;</li> <li>• June 6-30;</li> <li>• July 6-31;</li> <li>• August 1-6;</li> <li>• August 7-18 only open from Cape Falcon to the south end of Heceta Bank (43°58'00" N lat.). Closed from the south end of Heceta Bank to Humbug Mt.</li> <li>• September 1-30 (C.9.a).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>

TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – <b>Council adopted.</b> (Page 5 of 13)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• April 15-30;</li> <li>• May 6 through the earlier of May 31, or a 500 Chinook quota;</li> <li>• June 6 through the earlier of June 30, or a 700 Chinook quota;</li> <li>• July 6 through the earlier of July 31, or a 300 Chinook quota (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). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). Prior to May 1, all salmon caught in this area must be landed and delivered in the State of Oregon.</p> <p>May 6-July 31 weekly landing and possession limit of 40 Chinook per vessel per landing week (Thurs.-Wed.). Any remaining portion of Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period (C.8.b).</p> <p>All vessels fishing in this area during May, June, and July, must land and deliver all salmon within this area or into Port Orford within 24 hours of any closure of this fishery and prior to fishing outside of this area.</p> <p>For all quota managed seasons (May, June, and July), 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 541-867-0300 Ext. 252 or sending notification via e-mail to kmzor.trollreport@state.or.us, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.</p> <p>In 2021, the season will open March 15 for all salmon except coho. Chinook minimum size limit of 28 inches total length (B; C.1). Gear restrictions same as in 2020 (C.2; C.3; C.4). This season would open without quota or weekly landing limits unless modified following Council review at its March 2021 meeting (C.8).</p>	<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• April 15-30;</li> <li>• May 1-26;</li> <li>• June 6 through the earlier of June 30, or a 500 Chinook quota (C.9.a).</li> </ul> <p>Same as Alternative 1</p> <p>June 6-30 weekly landing and possession limit of 40 Chinook per vessel per landing week (Thurs.-Wed.).</p> <p>All vessels fishing in this area during June 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 the June quota managed season, 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 541-867-0300 Ext. 252 or sending notification via e-mail to kmzor.trollreport@state.or.us, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.</p> <p>In 2021, same as Alternative 1</p>	<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• May 6-31 (C.9.a).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>

TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries - <b>Council adopted.</b> (Page 6 of 13)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• Closed (C.9.b).</li> </ul> <p>In 2021, 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. Compliance requirements, open periods, gear restrictions and definitions, and landing and possession limits the same as 2020 Alternative II. Klamath Control Zone closed (C.5.e). See California State regulations for additional closures adjacent to the Smith and Klamath rivers. This opening could be modified following Council review at its March or April 2021 meetings.</p>	<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• June 1 through the earlier of June 30, or a 1,500 Chinook quota;</li> <li>• July 1 through the earlier of July 30, or a 1,250 Chinook quota;</li> <li>• August 1 through the earlier of August 29, or a 1,000 Chinook quota (C.9.b).</li> </ul> <p>Landing and possession limit of 20 Chinook per vessel per day (C.8.f).</p> <p>Open five days per week (Fri.-Tue.). All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1).</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 fish caught in this area must be landed within the area, within 24 hours of any closure of the fishery, 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 additional closures adjacent to the Smith and Klamath rivers.</p> <p>In 2021, same as Alternative 1</p>	<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• Closed (C.9.b).</li> </ul> <p>In 2021, same as Alternative 1</p>
<p><b>Humboldt South Jetty to Horse Mt.</b></p> <p>Closed.</p>	<p><b>Humboldt South Jetty to Horse Mt.</b></p> <p>Closed.</p>	<p><b>Humboldt South Jetty to Horse Mt.</b></p> <p>Closed.</p>

TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries - <b>Council adopted.</b> (Page 7 of 13)		
<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• August 1-28;</li> <li>• September 1-30 (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). All salmon must be landed in California and north of Point Arena (C.6).</p> <p>Chinook minimum size limit of 28 inches total length through August, then 27 inches total length thereafter (B, C.1).</p> <p>All salmon caught in the area prior to September 1 must be landed and off-loaded no later than 11:59 p.m., August 30 (C.6).</p> <p>In 2021, the season will open April 15 for all salmon except coho. Chinook minimum size limit of 27 inches total length. Gear restrictions same as in 2020. This opening could be modified following Council review at its March or April 2021 meetings.</p>	<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• September 1-30 (C.9.b).</li> </ul> <p>Same as Alternative 1</p> <p>Chinook minimum size limit of 27 inches total length (B, C.1).</p> <p>In 2021, same as Alternative 1</p>	<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• September 1-30 (C.9.b).</li> </ul> <p>Same as Alternative 1</p> <p>Chinook minimum size limit of 27 inches total length (B, C.1).</p> <p>In 2021, same as Alternative 1</p>
<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. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 8 of 13)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• May 7-29;</li> <li>• June 10-30;</li> <li>• July 15-28;</li> <li>• August 1-28;</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). All salmon must be landed in California.</p> <p>All salmon caught in the area prior to September 1 must be landed and offloaded no later than 11:59 p.m., August 30 (C.6). During September, all salmon must be landed south of Point Arena (C.6).</p> <p>In 2021, the season will open May 1 for all salmon except coho. Chinook minimum size limit of 27 inches total length. Gear restrictions same as in 2020. This opening could be modified following Council review at its March or April 2021 meetings.</p> <p><b>Point Reyes to Point San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• October 1-2, 5-9, 12-15.</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). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).</p>	<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• May 6-28;</li> <li>• June 4-30;</li> <li>• July 11-22;</li> <li>• August 1-28;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>When the CA KMZ fishery is open, all fish caught in the area must be landed south of Horse Mountain until the CA KMZ fishery has been closed for at least 48 hours (C.6).</p> <p>In 2021, same as Alternative 1</p> <p><b>Point Reyes to Point San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative 1</li> </ul>	<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• May 6-31;</li> <li>• June 12-30;</li> <li>• August 1-20;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p> <p><b>Point Reyes to Point San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative 1</li> </ul>

TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 9 of 13)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-29;</li> <li>• June 10-30;</li> <li>• July 15-28;</li> <li>• August 1-28 (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.</p> <p>All salmon caught in the area prior to September 1 must be landed and offloaded no later than 11:59 p.m., August 30 (C.6).</p> <p>In 2021, the season will open May 1 for all salmon except coho. Chinook minimum size limit of 27 inches total length. Gear restrictions same as in 2020. This opening could be modified following Council review at its March or April 2021 meeting.</p>	<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-28;</li> <li>• June 1-30;</li> <li>• July 11-22;</li> <li>• August 1-28 (C.9.b).</li> </ul> <p>Same as Alternative 1</p> <p>When the CA KMZ fishery is open, all fish caught in the area must be landed south of Horse Mountain until the CA KMZ fishery has been closed for at least 48 hours (C.6).</p> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>	<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-28;</li> <li>• June 1-30;</li> <li>• July 12-31;</li> <li>• August 1-28 (C.9.b).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</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. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries - Council Adopted. (Page 10 of 13)

Area (when open)	B. MINIMUM SIZE (Inches) (See C.1)				
	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
North of Cape Falcon	28	21.5	16	12	None
Cape Falcon to Humbug Mt.	28	21.5	-	-	None
Humbug Mt. to OR/CA Border	28	21.5	-	-	None
OR/CA Border to Humboldt South Jetty (Alt. II)	28	21.5	-	-	28
Horse Mt. to Pt. Arena through August (Alt. I)	28	21.5			28
Horse Mt. to Pt. Arena (Alt. II, Alt. III), and after August in Alt I.	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:**

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

C.3. **Gear Definitions:**

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

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

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

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

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

- a. Except as provided under C.4.b below, it is unlawful for a vessel to have troll or recreational gear in the water while in any area closed to fishing for a certain species of salmon, while possessing that species of salmon; however, fishing for species other than salmon is not prohibited if the area is open for such species, and no salmon are in possession.
- b. When Genetic Stock Identification (GSI) samples will be collected in an area closed to commercial salmon fishing, the scientific research permit holder shall notify NOAA OLE, USCG, CDFW, WDFW, ODFW and OSP at least 24 hours prior to sampling and provide the following information: the vessel name, date, location and time collection activities will be done. Any vessel collecting GSI samples in a closed area shall not possess any salmon other than those from which GSI samples are being collected. Salmon caught for collection of GSI samples must be immediately released in good condition after collection of samples.

TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries - Council adopted. (Page 11 of 13)

**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)..

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

TABLE 1. 2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries - Council adopted. (Page 12 of 13)

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

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

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

C.7. **Incidental Halibut Harvest:** During authorized periods, the operator of a vessel that has been issued an incidental halibut harvest license may retain Pacific halibut caught incidentally in Area 2A while trolling for salmon. Halibut retained must be no less than 32 inches in total length, measured from the tip of the lower jaw with the mouth closed to the extreme end of the middle of the tail, and must be landed with the head on. When halibut are caught and landed incidental to commercial salmon fishing by an IPHC license holder, any person who is required to report the salmon landing by applicable state law must include on the state landing receipt for that landing both the number of halibut landed, and the total dressed, head-on weight of halibut landed, in pounds, as well as the number and species of salmon landed.

License applications for incidental harvest must be obtained from the International Pacific Halibut Commission (phone: 206-634-1838). Applicants must apply prior to mid-March 2020 for 2020 permits (*exact date to be set by the IPHC in early 2020*). Incidental harvest is authorized only during April, May, and June of the 2020 troll seasons, and after June 30 in 2020 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 44,899 pound 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.

All alternatives are for the time period of May 1, 2020 through the end of the 2020 salmon troll fishery, and April 1-30, 2021 with the exception that the alternatives would be in place until modified through inseason action or superseded by the 2021 management measures.

**Alternative I** – (status quo) license holders may land no more than one Pacific halibut per each two Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than 35 halibut landed per trip.

**Alternative II** – license holders may land no more than one Pacific halibut per each two Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than 30 halibut landed per trip.

**Alternative III** - license holders may land no more than one Pacific halibut per each two Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than 25 halibut landed per trip.

Incidental Pacific halibut catch regulations in the commercial salmon troll fishery adopted for 2020, prior to any 2020 inseason action, will be in effect when incidental Pacific halibut retention opens on April 1, 2021 unless otherwise modified by inseason action at the March 2021 Council meeting.

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

48°18' N. lat.; 125°18' W. long.;

48°18' N. lat.; 124°59' W. long.;

48°11' N. lat.; 124°59' W. long.;

48°11' N. lat.; 125°11' W. long.;

48°04' N. lat.; 125°11' W. long.;

48°04' N. lat.; 124°59' W. long.;

48°00' N. lat.; 124°59' W. long.;

48°00' N. lat.; 125°18' W. long.;

and connecting back to 48°18' N. lat.; 125°18' W. long.

TABLE 1.2020 Commercial troll management Alternatives for non-Indian ocean salmon fisheries - Council adopted. (Page 13 of 13)

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

- C.8. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:
- 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.
  - 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.
  - 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.
  - At the March 2021 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2020).
  - 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.
  - Landing limits may be modified inseason to sustain season length and keep harvest within overall quotas.
- C.9. State Waters Fisheries: Consistent with Council management objectives:
- The State of Oregon may establish additional late-season fisheries in state waters.
  - The State of California may establish limited fisheries in selected state waters.
  - 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 Horse Mountain, California.

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

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

TABLE 2. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries - Council adopted. (Page 1 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
<b>ALTERNATIVE I</b>	<b>ALTERNATIVE II</b>	<b>ALTERNATIVE III</b>
<b>North of Cape Falcon</b>	<b>North of Cape Falcon</b>	<b>North of Cape Falcon</b>
<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>
<p>1. Overall non-Indian TAC: 60,000 Chinook and 35,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Recreational TAC: 30,000 Chinook and 29,400 marked coho; all retained coho must be marked.</p> <p>3. Various daily limits and species combinations of one and two salmon will be considered. Including one fish, two fish only, one of which may be a Chinook, and two fish only one of which may be a coho.</p> <p>4. A trade with commercial troll may be considered in April.</p> <p>5. No Area 4B add-on fishery.</p> <p>6. Buoy 10 fishery opens August 1 with an expected landed catch of 13,000 marked coho in August and September.</p> <p>7. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.</p>	<p>1. Overall non-Indian TAC: 45,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Recreational TAC: 22,125 Chinook and 22,500 marked coho; all retained coho must be marked.</p> <p>3. Various daily limits and species combinations of one and two salmon will be considered. Including one fish, two fish only, one of which may be a Chinook, and two fish only one of which may be a coho.</p> <p>4. Trade: Commercial troll traded 1,500 marked coho to the recreational fishery for 375 Chinook.</p> <p>5. No Area 4B add-on fishery.</p> <p>6. Buoy 10 fishery opens August 1 with an expected landed catch of 15,000 marked coho in August and September.</p> <p>7. Same as Alternative I</p>	<p><b>Closed</b></p> <p>6. Buoy 10 fishery opens August 1 with an expected landed catch of 17,000 marked coho in August and September.</p>
<p><b>U.S./Canada Border to Cape Alava (Neah Bay)</b></p> <ul style="list-style-type: none"> <li>June 14 through the earlier of September 30, or 3,060 marked coho subarea quota, with a subarea guideline of 6,400 Chinook (C.5).</li> </ul> <p>Open seven days a week. See minimum size limits (B).</p> <p>During June 14-28: All salmon, except coho; one salmon per day (C.1).</p> <p>Beginning June 29: All salmon, except no chum beginning August 1; 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).</p> <p>Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. See gear restrictions and definitions (C.2, C.3).</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>U.S./Canada Border to Cape Alava (Neah Bay)</b></p> <ul style="list-style-type: none"> <li>June 27 through the earlier of September 13, or 2,340 marked coho subarea quota, with a subarea guideline of 4,700 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 minimum size limits (B).</p> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p>	<p><b>U.S./Canada Border to Cape Alava (Neah Bay)</b></p> <ul style="list-style-type: none"> <li>Closed</li> </ul>

TABLE 2. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 2 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Cape Alava to Queets River (La Push Subarea)</b></p> <ul style="list-style-type: none"> <li>June 14 through the earlier of September 30, or 760 marked coho subarea quota, with a subarea guideline of 1,400 Chinook (C.5).</li> </ul> <p>Open seven days a week. See salmon minimum size limits (B).</p> <p>During June 14-28: All salmon, except coho; one salmon per day (C.1).</p> <p>Beginning June 29: All salmon, except no chum beginning August 1; 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).</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 27 through the earlier of September 13, or 580 marked coho subarea quota, with a subarea guideline of 1,100 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 salmon minimum size limits (B).</p> <p>Same as Alternative 1</p>	<p><b>Cape Alava to Queets River (La Push Subarea)</b></p> <ul style="list-style-type: none"> <li>Closed.</li> </ul>
<p><b>Queets River to Leadbetter Point (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>June 14 through the earlier of September 30, or 10,880 marked coho subarea quota, with a subarea guideline of 14,200 Chinook (C.5).</li> </ul> <p>During June 14-28: Open seven days per week. All salmon except coho; one salmon per day (C.1). Chinook minimum size limit of 22 inches total length (B).</p> <p>Beginning June 29: Open five days per week (Sun.-Thurs.). All salmon; two salmon per day, no more than one of which may be a Chinook. All coho must be marked with a healed adipose fin clip (C.1). Coho minimum size limit of 16 inches total length (B).</p> <p>Chinook minimum size limit of 22 inches total length (B).</p> <p>See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 10 (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>Queets River to Leadbetter Point (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>June 28 through the earlier of September 13, or 8,330 marked coho subarea quota, with a subarea guideline of 10,500 Chinook (C.5).</li> </ul> <p>Open five days per week (Sun.-Thurs.). All salmon; two salmon per day, no more than one of which may be a Chinook. All coho must be marked with a healed adipose fin clip (C.1). See salmon minimum size limits (B).</p> <p>Same as Alternative 1</p>	<p><b>Queets River to Leadbetter Point (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>Closed.</li> </ul>

TABLE 2. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries – <b>Council adopted.</b> (Page 3 of 9)		
<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Leadbetter Point to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>June 14 through the earlier of September 30, or 14,700 marked coho subarea quota, with a subarea guideline of 8,000 Chinook (C.5).</li> </ul> <p>During June 14-28: Open seven days per week. All salmon except coho; one salmon per day (C.1). Chinook minimum size limit of 22 inches total length (B).</p> <p>Beginning June 29, 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). Coho minimum size limit of 16 inches total length (B).</p> <p>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>	<p><b>Leadbetter Point to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>June 28 through the earlier of September 13, or 11,250 marked coho subarea quota, with a subarea guideline of 5,800 Chinook (C.5).</li> </ul> <p>Open five days per week (Sun.-Thurs.). All salmon; two salmon per day, no more than one of which may be a Chinook. All coho must be marked with a healed adipose fin clip (C.1). See salmon minimum size limits (B).</p> <p>Same as Alternative 1</p>	<p><b>Leadbetter Point to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>Closed.</li> </ul>

TABLE 2. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 4 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
South of Cape Falcon	South of Cape Falcon	South of Cape Falcon
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Supplemental Management Information	Supplemental Management Information	Supplemental Management Information
<ol style="list-style-type: none"> <li>Sacramento River fall Chinook spawning escapement of 228,346 hatchery and natural area adults.</li> <li>Sacramento Index exploitation rate of 51.7%.</li> <li>Klamath River recreational fishery allocation: 1,291 adult Klamath River fall Chinook.</li> <li>Klamath tribal allocation: 8,606 adult Klamath River fall Chinook.</li> <li>Overall recreational coho TAC: 22,000 coho marked with a healed adipose fin clip (marked), and 3,000 coho in the non-mark-selective coho fishery.</li> <li>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 (CFGC).</li> </ol>	<ol style="list-style-type: none"> <li>Sacramento River fall Chinook spawning escapement of 222,636 hatchery and natural area adults.</li> <li>Sacramento Index exploitation rate of 52.9%.</li> <li>Klamath River recreational fishery allocation: 1,285 adult Klamath River fall Chinook.</li> <li>Klamath tribal allocation: 8,568 adult Klamath River fall Chinook.</li> <li>Overall recreational coho TAC: 18,000 coho marked with a healed adipose fin clip (marked), and 4,000 coho in the non-mark-selective coho fishery.</li> <li>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> </ol>	<ol style="list-style-type: none"> <li>Sacramento River fall Chinook spawning escapement of 234,075 hatchery and natural area adults.</li> <li>Sacramento Index exploitation rate of 50.5%.</li> <li>Klamath River recreational fishery allocation: 801 adult Klamath River fall Chinook.</li> <li>Klamath tribal allocation: 5,342 adult Klamath River fall Chinook.</li> <li>Overall recreational coho TAC: 30,000 coho marked with a healed adipose fin clip (marked), and 0 coho in the non-mark-selective coho fishery.</li> <li>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> </ol>
<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>March 15-October 31 (C.6), except as provided below during the all-salmon mark-selective fishery and the non-mark-selective coho fishery (C.5).</li> </ul> <p>Open seven days per week. All salmon except coho, 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 2021, 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 2020 (C.2, C.3). This opening could be modified following Council review at its March 2021 meeting (C.5).</p>	<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>March 15-October 31 (C.6), except as provided below during the all-salmon mark-selective fishery and the non-mark-selective coho fishery (C.5).</li> </ul> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>	<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>March 15-October 31 (C.6), except as provided below during the all-salmon mark-selective fishery (C.5).</li> </ul> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>
<p>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. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries – <b>Council adopted.</b> (Page 5 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Cape Falcon to Humbug Mt.</b> All-salmon mark-selective coho fishery:</p> <ul style="list-style-type: none"> <li>• June 27 through the earlier of August 2, or 22,000 marked coho quota (C.6).</li> </ul> <p>Open seven days per week. All salmon, two salmon per day. All retained coho must be marked with a healed adipose fin clip (C.1). See minimum size limits (B). See gear restrictions and definitions (C.2, C.3).</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>Non-mark-selective coho fishery:</p> <ul style="list-style-type: none"> <li>• September 4-5, and open each Friday and Saturday through the earlier of September 30, or 3,000 non-mark-selective coho quota (C.6). Open days may be modified inseason.</li> </ul> <p>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>Cape Falcon to Humbug Mt.</b> All-salmon mark-selective coho fishery:</p> <ul style="list-style-type: none"> <li>• June 27 through the earlier of August 2, or 18,000 marked coho quota (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>Non-mark-selective coho fishery:</p> <ul style="list-style-type: none"> <li>• August 28-30, September 11-13, and open each Friday through Sunday through the earlier of September 30, or 4,000 non-mark-selective coho quota (C.6). Open days may be modified inseason</li> </ul> <p>All salmon, two salmon per day, but no more than one coho (C.1). See minimum size limits (B). See gear restrictions and definitions (C.2, C.3).</p>	<p><b>Cape Falcon to Humbug Mt.</b> All-salmon mark-selective coho fishery:</p> <ul style="list-style-type: none"> <li>• June 27 through the earlier of August 16, or 30,000 marked coho quota (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>Non-mark-selective coho fishery:</p> <ul style="list-style-type: none"> <li>• No season</li> </ul>
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><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• May 16-July 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 24 inches total length (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>• May 16-July 9 (C.6).</li> </ul> <p>Same as Alternative 1</p>	<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• June 20-July 5 (C.6).</li> </ul> <p>Same as Alternative 1</p>

TABLE 2. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 6 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>OR/CA Border to Horse Mt. (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• June 6-July 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>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 2021, 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 2020 (C.2, C.3). This opening could be modified following Council review at its March 2021 meeting.</p>	<p><b>OR/CA Border to Horse Mt. (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• June 11-July 31 (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>	<p><b>OR/CA Border to Horse Mt. (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• July 1-19 (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>
<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• April 11-30;</li> <li>• May 1-November 1 (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 2021, season opens April 3 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 2020 (C.2, C.3). This opening could be modified following Council review at its March 2021 meeting.</p>	<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• April 11-30;</li> <li>• May 1-October 31 (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>	<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• April 11-30;</li> <li>• May 1-October 30 (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>

TABLE 2. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries – Council adopted. (Page 7 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>April 11-30;</li> <li>May 1-November 1 (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 through April, then 20 inches total length thereafter (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 2021, season opens April 3 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 2020 (C.2, C.3). This opening could be modified following Council review at its March 2021 meeting.</p>	<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>April 11-30;</li> <li>May 1-October 31 (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>	<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>April 11-30;</li> <li>May 16-June 30;</li> <li>July 1-October 30 (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 through June, then 20 inches total length thereafter (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 2021, same as Alternative 1</p>
<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>April 4-October 4(C.6).</li> </ul> <p>Open seven days per week. All salmon except coho, two salmon per day (C.1). See gear restrictions and definitions (C.2, C.3). Chinook minimum size limit of 24 inches total length (B).</p> <p>In 2021, season opens April 3 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 2020 (C.2, C.3). This opening could be modified following Council review at its March 2021 meeting.</p>	<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>April 4-September 27 (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</p>	<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>April 4-September 7 (C.6).</li> </ul> <p>Same as Alternative 1</p> <p>In 2021, same as Alternative 1</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. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries - Council Adopted. (Page 8 of 9)

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

Area (when open)	Chinook	Coho	Pink
North of Cape Falcon (Alt 1 Westport and Col R)	22	16	None
North of Cape Falcon (Alt 1 Neah Bay and La Push, Alt II all areas)	24	16	None
Cape Falcon to Humbug Mt.	24	16	None
Humbug Mt. to OR/CA Border	24	16	None
OR/CA Border to Horse Mt.	20	-	20
Horse Mt. to Pt. Arena	20	-	20
Pt. Arena to Pigeon Pt. through April 30	24	-	24
Pt. Arena to Pigeon Pt. May 1-October 31 (Alt I, Alt II)	20	-	20
Pt. Arena to Pigeon Pt. May 23-June 30 (Alt III)	24	-	24
Pt. Arena to Pigeon Pt. July 1-October 31 (Alt III)	20	-	20
Pigeon Pt. to U.S./Mexico Border	24	-	24

**C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS**

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

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

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

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

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

C.3. **Gear Definitions:**

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

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

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

TABLE 2. 2020 Recreational management Alternatives for non-Indian ocean salmon fisheries - Council adopted. (Page 9 of 9)

**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 off shore); and, on the south by 41°26'48" N. lat. (approximately 6 nautical miles south of the Klamath River mouth).

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

- a. Actions could include modifications to bag limits, or days open to fishing, and extensions or reductions in areas open to fishing.
- b. Coho may be transferred inseason among recreational subareas north of Cape Falcon to help meet the recreational season duration objectives (for each subarea) after conferring with representatives of the affected ports and the Council's SAS recreational representatives north of Cape Falcon, and if the transfer would not result in exceeding preseason impact expectations on any stocks.
- c. Chinook and coho may be transferred between the recreational and commercial fisheries north of Cape Falcon if there is agreement among the representatives of the SAS, and if the transfer would not result in exceeding preseason impact expectations on any stocks.
- d. Fishery managers may consider inseason action modifying regulations restricting retention of unmarked (adipose fin intact) coho. To remain consistent with preseason expectations, any inseason action shall consider, if significant, the difference between observed and preseason forecasted (adipose-clipped) mark rates. Such a consideration may also include a change in bag limit of two salmon, no more than one of which may be a coho.
- e. Marked coho remaining from the Cape Falcon to Humbug Mt. recreational mark-selective coho quota may be transferred inseason to the Cape Falcon to Humbug Mt. non-mark-selective recreational fishery if the transfer would not result in exceeding preseason impact expectations on any stocks.

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

TABLE 3a. 2020 Treaty Indian troll management Alternatives for ocean salmon fisheries - Council adopted. (QTA)<sup>a/</sup> (Page 1 of 3)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
QTA ALTERNATIVE I-a	QTA ALTERNATIVE II-a	QTA ALTERNATIVE III-a
<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>
<p>1. Overall Treaty-Indian TAC: 30,000 Chinook and 12,500 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>1. Overall Treaty-Indian TAC: 25,000 Chinook and 10,000 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>1. Overall Treaty-Indian TAC: 20,000 Chinook and 0 coho.</p> <p>2. Overall Chinook and/or coho TAC 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>
<ul style="list-style-type: none"> <li>• May 1 through the earlier of June 30 or 18,000 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 August 31, or 12,000 Chinook quota, or 12,500 coho quota.</li> </ul> <p>All Salmon. See size limit (B) and other restrictions (C).</p>	<ul style="list-style-type: none"> <li>• May 1 through the earlier of June 30 or 15,000 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 August 31, or 10,000 Chinook quota or 10,000 coho quota</li> </ul> <p>All salmon. See size limit (B) and other restrictions (C).</p>	<ul style="list-style-type: none"> <li>• May 1 through the earlier of June 30 or 12,000 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 August 31, or 8,000 Chinook quota or 0 coho quota.</li> </ul> <p>All salmon. See size limit (B) and other restrictions (C).</p>

a/ Quinault Tribal Area (QTA) proposed

TABLE 3b. 2020 Treaty Indian troll management Alternatives for ocean salmon fisheries - Council adopted. (MT)<sup>a/</sup> (Page 2 of 3)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
MT ALTERNATIVE I-b	MT ALTERNATIVE II-b	MT ALTERNATIVE III-b
<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>
<p>1. Overall Treaty-Indian TAC: 45,000 Chinook and 30,000 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>1. Overall Treaty-Indian TAC: 35,000 Chinook and 22,500 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>1. Overall Treaty-Indian TAC: 25,000 Chinook and 15,000 coho.</p> <p>2. Overall Chinook and/or coho TAC 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>
<ul style="list-style-type: none"> <li>May 1 through the earlier of June 30 or 22,500 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 22,500 Chinook quota, or 30,000 coho quota.</li> </ul> <p>All Salmon. See size limit (B) and other restrictions (C).</p>	<ul style="list-style-type: none"> <li>May 1 through the earlier of June 30 or 17,500 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 17,500 Chinook quota or 22,500 coho quota</li> </ul> <p>All salmon. See size limit (B) and other restrictions (C).</p>	<ul style="list-style-type: none"> <li>May 1 through the earlier of June 30 or 12,500 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 12,500 Chinook quota or 15,000 coho quota.</li> </ul> <p>All salmon. See size limit (B) and other restrictions (C).</p>

a/ Makah Tribe proposed.

**B. Minimum Length (total inches). For all Alternatives in Tables 3a and 3b**

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

TABLE 3a/3b. 2020 Treaty Indian troll management Alternatives for ocean salmon fisheries - Council adopted. (Page 3 of 3)
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### 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.

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

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

C.2. Gear restrictions

- a. Single point, single shank, barbless hooks are required in all fisheries.
- b. No more than eight fixed lines per boat.
- c. No more than four hand held lines per person in the Makah area fishery (Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.)

C.3. Quotas

- a. The quotas include troll catches by the S'Klallam and Makah Tribes in Washington State Statistical Area 4B from May 1 through September 15.
- b. The Quileute Tribe may continue a ceremonial and subsistence fishery during the time frame of October 1 through October 15 in the same manner as in 2004-2015. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2020 season (estimated harvest during the October ceremonial and subsistence fishery: 20 Chinook; 40 coho).

C.4. Area Closures

- a. The area within a six nautical mile radius of the mouths of the Queets River (47°31'42" N. lat.) and the Hoh River (47°45'12" N. lat.) will be closed to commercial fishing.
- b. A closure within two nautical miles of the mouth of the Quinault River (47°21'00" N. lat.) may be enacted by the Quinault Nation and/or the State of Washington and will not adversely affect the Secretary of Commerce's management regime.

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

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



TABLE 4a. 2020 Chinook and coho harvest quotas and guidelines (\*) for ocean salmon fishery management Alternatives - Council adopted (QTA).

Fishery or Quota Designation	Chinook for Alternative			Coho for Alternative		
	I	II	III	I	II	III
<b>NORTH OF CAPE FALCON</b>						
TREATY INDIAN OCEAN TROLL <sup>a/</sup>						
U.S./Canada Border to Cape Falcon (All Except Coho)	18,000	15,000	12,000	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	12,000	10,000	8,000	12,500	10,000	0
Subtotal Treaty Indian Ocean Troll	30,000	25,000	20,000	12,500	10,000	0
NON-INDIAN COMMERCIAL TROLL <sup>b/</sup>						
U.S./Canada Border to Cape Falcon (All Except Coho)	20,000	11,500	0	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	10,000	11,375	0	5,600	2,500	0
Subtotal Non-Indian Commercial Troll	30,000	22,875	0	5,600	2,500	0
RECREATIONAL						
U.S./Canada Border to Cape Alava <sup>b/</sup>	6,400 *	4,700 *	0	3,060	2,340	0
Cape Alava to Queets River <sup>b/</sup>	1,400 *	1,100 *	0	760	580	0
Queets River to Leadbetter Pt. <sup>b/</sup>	14,200 *	10,500 *	0	10,880	8,330	0
Leadbetter Pt. to Cape Falcon <sup>b/c/</sup>	8,000 *	5,800 *	0	14,700	11,250	0
Subtotal Recreational	30,000	22,125	0	29,400	22,500	0
TOTAL NORTH OF CAPE FALCON	90,000	70,000	20,000	47,500	35,000	0
<b>SOUTH OF CAPE FALCON</b>						
COMMERCIAL TROLL <sup>a/</sup>						
Humbug Mt. to OR/CA Border	1,500	500	-	-	-	-
OR/CA Border to Humboldt South Jetty	-	3,750	-	-	-	-
Subtotal Commercial Troll	1,500	4,250	0	-	-	-
RECREATIONAL						
Cape Falcon to OR/CA Border	-	-	-	25,000 <sup>d/</sup>	22,000 <sup>e/</sup>	30,000 <sup>f/</sup>
TOTAL SOUTH OF CAPE FALCON	1,500	4,250	0	25,000	22,000	30,000

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

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

c/ Does not include Buoy 10 fishery. Expected catch in August and September: Alternative I - 13,000 marked coho; Alternative II - 15,000 marked coho; Alternative III - 17,000 marked coho.

d/ The quota consists of both mark-selective and non-mark-selective coho quotas: 22,000 and 3,000 respectively.

e/ The quota consists of both mark-selective and non-mark-selective coho quotas: 18,000 and 4,000 respectively.

f/ Quota is mark-selective.

TABLE 4b. 2020 Chinook and coho harvest quotas and guidelines (\*) for ocean salmon fishery management Alternatives - Council adopted (MT).

Fishery or Quota Designation	Chinook for Alternative			Coho for Alternative		
	I	II	III	I	II	III
<b>NORTH OF CAPE FALCON</b>						
TREATY INDIAN OCEAN TROLL <sup>a/</sup>						
U.S./Canada Border to Cape Falcon (All Except Coho)	22,500	17,500	12,500	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	22,500	17,500	12,500	30,000	22,500	15,000
Subtotal Treaty Indian Ocean Troll	45,000	35,000	25,000	30,000	22,500	15,000
NON-INDIAN COMMERCIAL TROLL <sup>b/</sup>						
U.S./Canada Border to Cape Falcon (All Except Coho)	20,000	11,500	0	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	10,000	11,375	0	5,600	2,500	0
Subtotal Non-Indian Commercial Troll	30,000	22,875	0	5,600	2,500	0
RECREATIONAL						
U.S./Canada Border to Cape Alava <sup>b/</sup>	6,400 *	4,700 *	0	3,060	2,340	0
Cape Alava to Queets River <sup>b/</sup>	1,400 *	1,100 *	0	760	580	0
Queets River to Leadbetter Pt. <sup>b/</sup>	14,200 *	10,500 *	0	10,880	8,330	0
Leadbetter Pt. to Cape Falcon <sup>b/c/</sup>	8,000 *	5,800 *	0	14,700	11,250	0
Subtotal Recreational	30,000	22,125	0	29,400	22,500	0
TOTAL NORTH OF CAPE FALCON	105,000	80,000	25,000	65,000	47,500	15,000
<b>SOUTH OF CAPE FALCON</b>						
COMMERCIAL TROLL <sup>a/</sup>						
Humbug Mt. to OR/CA Border	1,500	500	-	-	-	-
OR/CA Border to Humboldt South Jetty	-	3,750	-	-	-	-
Subtotal Commercial Troll	1,500	4,250	0	-	-	-
RECREATIONAL						
Cape Falcon to OR/CA Border	-	-	-	25,000 <sup>d/</sup>	22,000 <sup>e/</sup>	30,000 <sup>f/</sup>
TOTAL SOUTH OF CAPE FALCON	1,500	4,250	0	25,000	22,000	30,000

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

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

c/ Does not include Buoy 10 fishery. Expected catch in August and September: Alternative I - 13,000 marked coho; Alternative II - 15,000 marked coho; Alternative III - 17,000 marked coho.

d/ The quota consists of both mark-selective and non-mark-selective coho quotas: 22,000 and 3,000 respectively.

e/ The quota consists of both mark-selective and non-mark-selective coho quotas: 18,000 and 4,000 respectively.

f/ Quota is mark-selective.

TABLE 5a. 2020 Projected key stock escapements (thousands of fish) or management criteria for ocean fishery Alternatives - Council adopted (QTA) <sup>a/</sup> (Page 1 of 2)

Key Stock/Criteria	PROJECTED			2020 Criteria	Spawner Objective or Other Comparative Standard as Noted <sup>b/</sup>
	Alt I	Alt II	Alt III		
<b>CHINOOK</b>					
Columbia Upriver Brights	230.4	231.8	239.3		74.0 Minimum ocean escapement to attain 40.0 adults over McNary Dam, with normal distribution and no mainstem harvest. The management goal has been increased to 60.0 by Columbia River managers.
Mid-Columbia Brights	78.7	79.2	81.7		14.9 Minimum ocean escapement to attain 7.9 for Little White Salmon egg-take, assuming average conversion and no mainstem harvest.
Columbia Lower River Hatchery Tules	50.1	50.9	53.9		25.0 Minimum ocean escapement to attain 14.8 adults for hatchery egg-take, with average conversion and no lower river mainstem or tributary harvest.
Columbia Lower River Natural Tules <sup>c/</sup> (threatened)	35.9%	34.2%	28.3%		≤ 38.0% Total adult equivalent fishery exploitation rate (2020 NMFS ESA guidance).
Columbia Lower River Wild <sup>d/</sup> (threatened)	19.6	19.7	20.6		6.9 Minimum ocean escapement to attain MSY spawner goal of 5.7 for N. Lewis River fall Chinook (NMFS ESA consultation standard).
Spring Creek Hatchery Tules	44.8	46.3	49.9		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	37.6	38.1	39.1		29.0 Aggregate escapement to mouth of Columbia River.
Snake River Fall (threatened) SRFI	50.6%	45.4%	27.3%		≤ 70.0% Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).
Klamath River Fall	36.2	36.2	--		≥ 36.2 2020 minimum natural area adult escapement (FMP control rule).
	--	--	40.7		≥ 40.7 2020 minimum natural area adult escapement (Council guidance).
Federally recognized tribal harvest	50.0%	50.0%	50.0%		50.0% Equals 8.6, 8.6, and 5.3 (thousand) adult fish for Yurok and Hoopa Valley tribal fisheries.
Exploitation (spawner reduction) rate	25.0%	25.0%	--		≤ 25.0% FMP control rule.
	--	--	15.7%		≤ 15.7% Council guidance.
Adult river mouth return	59.0	59.0	60.9		NA Total adults in thousands.
Age-4 ocean harvest rate	8.9%	9.3%	6.1%		≤ 16.0% NMFS ESA consultation standard for threatened California Coastal Chinook.
KMZ sport fishery share	7.5%	6.2%	3.6%		
River recreational fishery share	15.0%	15.0%	15.0%		NA Equals 1.3, 1.3, and 0.8 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	16.8%	17.7%	20.0%		≤ 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 2020 ESA Guidance).
Sacramento River Fall	228.3	222.6	234.1		≥ 141.955 2020 minimum hatchery and natural area adult escapement (FMP control rule).
Sacramento Index Exploitation Rate	51.7%	52.9%	50.5%		≤ 70.0% FMP control rule.
Ocean commercial impacts	148.6	155.8	145.4		Includes fall (Sept-Dec) 2019 impacts (5.7 thousand SRFC).
Ocean recreational impacts	55.9	55.5	52.4		Includes fall (Sept-Dec) 2019 impacts (3.3 thousand SRFC).
River recreational impacts	40.3	39.3	41.3		
SRKW Prey Abundance					
North of Falcon	1,250.9	1,250.9	1,250.9		≥ 972.0 Oct 1 starting abundance of age 3+ Chinook from U.S./Canada Border to Cape Falcon
Falcon to Horse Mt.	1,063.6	1,063.6	1,063.6		NA Oct 1 starting abundance of age 3+ Chinook from Cape Falcon to Horse Mt.
South of Horse Mt.	543.8	543.8	543.8		NA Oct 1 starting abundance of age 3+ Chinook south of Horse Mt.

TABLE 5a. Projected key stock escapements (thousands of fish) or management criteria for 2020 ocean fishery Alternatives - Council adopted (QTA).<sup>a/</sup> (Page 2 of 2)

Key Stock/Criteria	PROJECTED			2020 Criteria	Spawner Objective or Other Comparative Standard as Noted <sup>b/</sup>
	Alt I	Alt II	Alt III		
<b>COHO</b>	<b>COHO</b>			<b>COHO</b>	
Interior Fraser (Thompson River)	6.3%(2.3%)	5.7%(1.8%)	4.6%(0.6%)	≤ 10.0% 2020 Southern U.S. exploitation rate ceiling; PSC coho agreement.	
Skagit	34.1%(2.3%)	33.7%(1.7%)	32.8%(0.6%)	≤ 35.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Stillaguamish	27.1%(1.7%)	26.7%(1.2%)	26.0%(0.4%)	≤ 35.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Snohomish	<b>24.0%(1.7%)</b>	<b>23.6%(1.2%)</b>	<b>22.9%(0.4%)</b>	≤ 20.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Hood Canal	41.7%(2.6%)	41.3%(2.0%)	40.4%(0.7%)	≤ 45.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Strait of Juan de Fuca	8.4%(2.1%)	7.9%(1.6%)	6.8%(0.6%)	≤ 20.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Quillayute Fall	8.7	8.8	8.9	6.3 FMP MSY adult spawner estimate. Value depicted is ocean escapement.	
Hoh	3.6	3.7	3.8	2.0 FMP MSY adult spawner estimate. Value depicted is ocean escapement.	
Queets Wild	6.7	6.8	7.1	5.8 FMP MSY adult spawner estimate. Value depicted is ocean escapement.	
Grays Harbor	47.2	47.6	48.2	24.4 FMP MSY adult spawner estimate. Value depicted is ocean escapement.	
Willapa Bay	27.5	28.3	29.2	17.2 FMP MSY natural area adult spawner estimate. Value depicted is ocean escapement.	
Lower Columbia River Natural (threatened)	15.1%	12.9%	9.7%	≤ 18.0% Total marine and mainstem Columbia R. fishery exploitation rate (2020 NMFS ESA guidance).	
Upper Columbia <sup>c/</sup>	70%	73%	76%	≥ 50% Minimum percentage of the run to Bonneville Dam.	
Columbia River Hatchery Early	87.8	92.2	93.8	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	34.6	37.3	42.2	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	11.7%	11.1%	10.3%	≤ 15.0% Marine and freshwater fishery exploitation rate (NMFS ESA consultation standard).	
Southern Oregon/Northern California Coast (threatened)	3.2%	3.5%	2.7%	≤ 13.0% Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard).	

a/ Coho projections in the table assume post-season 2018 fishery scalars for Canadian fisheries, except Fraser net and terminal fisheries (post-season 2016), and Fraser sport (post-season 2017). Model results for Chinook in this table used 2018 preseason catches and fishing effort scalars, and are updated with 2018 post season data if available. Assumptions for these fisheries will be changed prior to the April meeting as new information becomes available.

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

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

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

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

TABLE 5b. 2020 Projected key stock escapements (thousands of fish) or management criteria for ocean fishery Alternatives - Council adopted (MT) <sup>a/</sup> (Page 1 of 2)

Key Stock/Criteria	PROJECTED			2020 Criteria	Spawner Objective or Other Comparative Standard as Noted <sup>b/</sup>
	Alt I	Alt II	Alt III		
<b>CHINOOK</b>					
Columbia Upriver Brights	229.0	230.9	238.8	74.0	Minimum ocean escapement to attain 40.0 adults over McNary Dam, with normal distribution and no mainstem harvest. The management goal has been increased to 60.0 by Columbia River managers.
Mid-Columbia Brights	78.2	78.8	81.5	14.9	Minimum ocean escapement to attain 7.9 for Little White Salmon egg-take, assuming average conversion and no mainstem harvest.
Columbia Lower River Hatchery Tules	49.8	50.7	53.8	25.0	Minimum ocean escapement to attain 14.8 adults for hatchery egg-take, with average conversion and no lower river mainstem or tributary harvest.
Columbia Lower River Natural Tules <sup>c/</sup> (threatened)	36.5%	34.6%	28.5%	≤ 38.0%	Total adult equivalent fishery exploitation rate (2020 NMFS ESA guidance).
Columbia Lower River Wild <sup>b/</sup> (threatened)	19.5	19.6	20.6	6.9	Minimum ocean escapement to attain MSY spawner goal of 5.7 for N. Lewis River fall Chinook (NMFS ESA consultation standard).
Spring Creek Hatchery Tules	44.5	46.0	49.8	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	37.4	38.1	39.1	29.0	Aggregate escapement to mouth of Columbia River.
Snake River Fall (threatened) SRFI	54.1%	47.9%	28.7%	≤ 70.0%	Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).
Klamath River Fall	36.2	36.2	--	≥ 36.2	2020 minimum natural area adult escapement (FMP control rule).
	--	--	40.7	≥ 40.7	2020 minimum natural area adult escapement (Council guidance).
Federally recognized tribal harvest	50.0%	50.0%	50.0%	50.0%	Equals 8.6, 8.6, and 5.3 (thousand) adult fish for Yurok and Hoopa Valley tribal fisheries.
Exploitation (spawner reduction) rate	25.0%	25.0%	--	≤ 25.0%	FMP control rule.
	--	--	15.7%	≤ 15.7%	Council guidance.
Adult river mouth return	59.0	59.0	60.9	NA	Total adults in thousands.
Age-4 ocean harvest rate	8.9%	9.3%	6.1%	≤ 16.0%	NMFS ESA consultation standard for threatened California Coastal Chinook.
KMZ sport fishery share	7.5%	6.2%	3.6%		
River recreational fishery share	15.0%	15.0%	15.0%	NA	Equals 1.3, 1.3, and 0.8 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	16.8%	17.7%	20.0%	≤ 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 2020 ESA Guidance).
Sacramento River Fall	228.3	222.6	234.1	≥ 141.955	2020 minimum hatchery and natural area adult escapement (FMP control rule).
Sacramento Index Exploitation Rate	51.7%	52.9%	50.5%	≤ 70.0%	FMP control rule.
Ocean commercial impacts	148.6	155.8	145.4		Includes fall (Sept-Dec) 2019 impacts (5.7 thousand SRFC).
Ocean recreational impacts	55.9	55.5	52.4		Includes fall (Sept-Dec) 2019 impacts (3.3 thousand SRFC).
River recreational impacts	40.3	39.3	41.3		
SRKW Prey Abundance					
North of Falcon	1,250.9	1,250.9	1,250.9	≥ 972.0	Oct 1 starting abundance of age 3+ Chinook from U.S./Canada Border to Cape Falcon
Falcon to Horse Mt.	1,063.6	1,063.6	1,063.6	NA	Oct 1 starting abundance of age 3+ Chinook from Cape Falcon to Horse Mt.
South of Horse Mt.	543.8	543.8	543.8	NA	Oct 1 starting abundance of age 3+ Chinook south of Horse Mt.

TABLE 5b. Projected key stock escapements (thousands of fish) or management criteria for 2020 ocean fishery management measures - Council adopted (MT).<sup>a/</sup> (Page 2 of 2)

Key Stock/Criteria	PROJECTED			2020 Criteria	Spawner Objective or Other Comparative Standard as Noted <sup>b/</sup>
	Alt I	Alt II	Alt III		
<b>COHO</b>	<b>COHO</b>			<b>COHO</b>	
Interior Fraser (Thompson River)	8.4%(4.4%)	7.2%(3.3%)	6.0%(2.0%)	≤ 10.0% 2020 Southern U.S. exploitation rate ceiling; PSC coho agreement.	
Skagit	<b>35.5%(4.1%)</b>	34.7%(3.0%)	33.7%(1.8%)	≤ 35.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Stillaguamish	28.1%(3.0%)	27.4%(2.2%)	26.7%(1.3%)	≤ 35.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Snohomish	<b>25.1%(3.0%)</b>	<b>24.4%(2.2%)</b>	<b>23.6%(1.3%)</b>	≤ 20.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Hood Canal	43.0%(4.4%)	42.2%(3.3%)	41.2%(2.0%)	≤ 45.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Strait of Juan de Fuca	9.9%(3.7%)	9.0%(2.8%)	7.9%(1.6%)	≤ 20.0% 2020 total exploitation rate ceiling; FMP matrix <sup>d/</sup>	
Quillayute Fall	8.6	8.7	8.8	6.3 FMP MSY adult spawner estimate. Value depicted is ocean escapement.	
Hoh	3.5	3.6	3.7	2.0 FMP MSY adult spawner estimate. Value depicted is ocean escapement.	
Queets Wild	6.5	6.7	6.9	5.8 FMP MSY adult spawner estimate. Value depicted is ocean escapement.	
Grays Harbor	46.3	47.0	47.7	24.4 FMP MSY adult spawner estimate. Value depicted is ocean escapement.	
Willapa Bay	27.0	27.9	28.9	17.2 FMP MSY natural area adult spawner estimate. Value depicted is ocean escapement.	
Lower Columbia River Natural (threatened)	16.7%	14.1%	10.6%	≤ 18.0% Total marine and mainstem Columbia R. fishery exploitation rate (2020 NMFS ESA guidance).	
Upper Columbia <sup>c/</sup>	69%	73%	76%	≥ 50% Minimum percentage of the run to Bonneville Dam.	
Columbia River Hatchery Early	86.3	91.0	92.9	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	33.9	36.8	41.7	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	12.1%	11.4%	10.5%	≤ 15.0% Marine and freshwater fishery exploitation rate (NMFS ESA consultation standard).	
Southern Oregon/Northern California Coast (threatened)	3.2%	3.5%	2.7%	≤ 13.0% Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard).	

a/ Coho projections in the table assume post-season 2018 fishery scalars for Canadian fisheries, except Fraser net and terminal fisheries (post-season 2016), and Fraser sport (post-season 2017), Model results for Chinook in this table used 2018 preseason catches and fishing effort scalars, and are updated with 2018 post season data if available. Assumptions for these fisheries will be changed prior to the April meeting as new information becomes available.

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

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

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

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

TABLE 6a. Preliminary projections of Chinook and coho harvest impacts for 2020 ocean salmon fishery management Alternatives - Council adopted (QTA). (Page 1 of 2)

Area and Fishery	2020 Catch Projection			2020 Bycatch Mortality <sup>a/</sup> Projection			2020 Bycatch Projection <sup>b/</sup>			Observed in 2019	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
<b>OCEAN FISHERIES:</b>											
<b>CHINOOK (thousands of fish)</b>											
<b>NORTH OF CAPE FALCON</b>											
Treaty Indian Ocean Troll	30.0	25.0	20.0	3.0	2.5	2.0	7.5	6.3	5.0	18.3	1.9
Non-Indian Commercial Troll	30.0	22.9	-	14.8	10.6	-	53.6	38.1	-	23.3	9.6
Recreational	30.0	22.1	-	3.6	3.1	-	16.7	15.6	-	10.9	1.8
<b>CAPE FALCON TO HUMBUG MT.<sup>c/</sup></b>											
Commercial Troll	45.4	45.8	35.2	15.0	15.1	11.6	45.3	45.7	35.2	26.5	9.0
Recreational	5.4	5.6	6.2	0.7	0.8	0.8	2.9	2.9	3.2	4.7	0.7
<b>HUMBUG MT. TO OR/CA BORDER<sup>c/</sup></b>											
Commercial Troll	1.5	1.1	0.6	0.5	0.4	0.2	1.5	1.1	0.6	1.9	0.8 <sup>e/</sup>
Recreational	1.8	1.1	0.4	0.2	0.1	0.1	1.0	0.6	0.2	0.6	0.1 <sup>e/</sup>
<b>OR/CA BORDER TO HORSE MT.<sup>d/</sup></b>											
Commercial Troll	0.0	3.8	0.0	0.0	1.2	0.0	0.0	3.7	0.0	5.9	2.5 <sup>e/</sup>
Recreational	4.9	4.5	1.8	0.7	0.6	0.2	2.6	2.4	0.9	5.0	0.8 <sup>e/</sup>
<b>HORSE MT. TO PT. ARENA</b>											
Commercial Troll	19.7	1.1	1.1	6.5	0.4	0.4	19.7	1.1	1.1	10.5	7.8 <sup>e/</sup>
Recreational	8.4	8.4	8.4	1.1	1.1	1.1	4.4	4.4	4.4	3.9	0.8 <sup>e/</sup>
<b>PT. ARENA TO PIGEON PT.</b>											
Commercial Troll	83.6	96.0	69.2	27.6	31.7	22.8	83.4	95.9	69.1	159.4	65.7 <sup>e/</sup>
Recreational	43.4	43.4	41.3	5.9	5.9	5.6	20.8	20.8	19.8	56.5	8.0 <sup>e/</sup>
<b>SOUTH OF PIGEON PT.</b>											
Commercial Troll	38.7	44.0	65.8	12.8	14.5	21.7	38.6	43.9	65.7	95.9	13.7 <sup>e/</sup>
Recreational	14.1	14.1	14.1	1.9	1.9	1.9	6.8	6.7	6.7	23.1	2.4 <sup>e/</sup>
<b>TOTAL OCEAN FISHERIES</b>											
Commercial Troll	248.9	239.6	192.0	80.2	76.4	58.8	249.7	235.8	176.7	341.7	111.0
Recreational	108.1	99.1	72.1	14.3	13.6	9.8	55.1	53.4	35.3	104.7	14.7
<b>INSIDE FISHERIES:</b>											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.3	3.5 <sup>e/</sup>

TABLE 6a. Preliminary projections of Chinook and coho harvest impacts for 2020 ocean salmon fishery management Alternatives adopted by the Council (QTA). (Page 2 of 2)

Area and Fishery	2020 Catch Projection			2020 Bycatch Mortality <sup>a/</sup> Projection			2020 Bycatch Projection <sup>b/</sup>			Observed in 2019	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
<b>OCEAN FISHERIES:</b>											
<b>COHO (thousands of fish)</b>											
<b>NORTH OF CAPE FALCON</b>											
Treaty Indian Ocean Troll <sup>f/</sup>	12.5	10.0	-	1.3	1.1	4.4	3.3	2.7	17.0	55.5	3.4
Non-Indian Commercial Troll	5.6	2.5	-	5.0	2.6	-	17.8	9.4	-	5.4	1.6
Recreational	29.4	22.5	-	7.2	5.1	-	34.0	23.1	-	81.6	20.4
<b>SOUTH OF CAPE FALCON</b>											
Commercial Troll	-	-	-	2.4	2.7	2.3	9.2	10.3	8.9	-	1.9
Recreational <sup>f/</sup>	25.0	22.0	30.0	9.7	8.2	12.1	52.1	44.3	63.1	49.1	9.4
<b>TOTAL OCEAN FISHERIES</b>											
Commercial Troll	18.1	12.5	0.0	8.8	6.4	6.7	30.3	22.4	25.9	60.9	6.9
Recreational	54.4	44.5	30.0	16.9	13.3	12.1	86.1	67.4	63.1	130.7	29.8
<b>INSIDE FISHERIES:</b>											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	13.0	15.0	17.0	3.1	3.4	3.8	14.1	15.5	17.4	22.8	6.3 <sup>e/</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/ The commercial fishery in this area is closed between Humboldt South Jetty and Horse Mountain.

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

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



TABLE 6b. Preliminary projections of Chinook and coho harvest impacts for 2020 ocean salmon fishery management Alternatives - Council adopted (MT). (Page 1 of 2)

Area and Fishery	2020 Catch Projection			2020 Bycatch Mortality <sup>a/</sup> Projection			2020 Bycatch Projection <sup>b/</sup>			Observed in 2019	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
<b>OCEAN FISHERIES:</b>											
<b>CHINOOK (thousands of fish)</b>											
<b>NORTH OF CAPE FALCON</b>											
Treaty Indian Ocean Troll	45.0	35.0	25.0	4.6	3.6	2.6	11.6	9.0	6.4	18.3	1.9
Non-Indian Commercial Troll	30.0	22.9	0.0	14.8	10.6	0.0	53.6	38.1	0.0	23.3	9.6
Recreational	30.0	22.1	0.0	3.6	3.1	0.0	16.7	15.6	0.0	10.9	1.8
<b>CAPE FALCON TO HUMBUG MT.<sup>c/</sup></b>											
Commercial Troll	45.4	45.8	35.2	15.0	15.1	11.6	45.3	45.7	35.2	26.5	9.0
Recreational	5.4	5.6	6.2	0.7	0.8	0.8	2.9	2.9	3.2	4.7	0.7
<b>HUMBUG MT. TO OR/CA BORDER<sup>c/</sup></b>											
Commercial Troll	1.5	1.1	0.6	0.5	0.4	0.2	1.5	1.1	0.6	1.9	0.8 <sup>e/</sup>
Recreational	1.8	1.1	0.4	0.2	0.1	0.1	1.0	0.6	0.2	0.6	0.1 <sup>e/</sup>
<b>OR/CA BORDER TO HORSE MT.<sup>d/</sup></b>											
Commercial Troll	0.0	3.8	0.0	0.0	1.2	0.0	0.0	3.7	0.0	5.9	2.5 <sup>e/</sup>
Recreational	4.9	4.5	1.8	0.7	0.6	0.2	2.6	2.4	0.9	5.0	0.8 <sup>e/</sup>
<b>HORSE MT. TO PT. ARENA</b>											
Commercial Troll	19.7	1.1	1.1	6.5	0.4	0.4	19.7	1.1	1.1	10.5	7.8 <sup>e/</sup>
Recreational	8.4	8.4	8.4	1.1	1.1	1.1	4.4	4.4	4.4	3.9	0.8 <sup>e/</sup>
<b>PT. ARENA TO PIGEON PT.</b>											
Commercial Troll	83.6	96.0	69.2	27.6	31.7	22.8	83.4	95.9	69.1	159.4	65.7 <sup>e/</sup>
Recreational	43.4	43.4	41.3	5.9	5.9	5.6	20.8	20.8	19.8	56.5	8.0 <sup>e/</sup>
<b>SOUTH OF PIGEON PT.</b>											
Commercial Troll	38.7	44.0	65.8	12.8	14.5	21.7	38.6	43.9	65.7	95.9	13.7 <sup>e/</sup>
Recreational	14.1	14.1	14.1	1.9	1.9	1.9	6.8	6.7	6.7	23.1	2.4 <sup>e/</sup>
<b>TOTAL OCEAN FISHERIES</b>											
Commercial Troll	263.9	249.6	197.0	81.8	77.4	59.3	253.8	238.5	178.1	341.7	111.0
Recreational	108.1	99.1	72.1	14.3	13.6	9.8	55.1	53.4	35.3	104.7	14.7
<b>INSIDE FISHERIES:</b>											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.3	3.5 <sup>e/</sup>

TABLE 6b. Preliminary projections of Chinook and coho harvest impacts for 2020 ocean salmon fishery management Alternatives adopted by the Council (MT). (Page 2 of 2)

Area and Fishery	2020 Catch Projection			2020 Bycatch Mortality <sup>a/</sup> Projection			2020 Bycatch Projection <sup>b/</sup>			Observed in 2019	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
<b>OCEAN FISHERIES:</b>											
<b>COHO (thousands of fish)</b>											
<b>NORTH OF CAPE FALCON</b>											
Treaty Indian Ocean Troll <sup>f/</sup>	30.0	22.5	15.0	2.1	1.6	1.1	3.7	3.0	2.1	55.5	3.4
Non-Indian Commercial Troll	5.6	2.5	-	5.0	2.6	-	17.8	9.4	-	5.4	1.6
Recreational	29.4	22.5	-	7.2	5.1	-	34.0	23.1	-	81.6	20.4
<b>SOUTH OF CAPE FALCON</b>											
Commercial Troll	-	-	-	2.4	2.7	2.3	9.2	10.3	8.9	-	1.9
Recreational <sup>f/</sup>	25.0	22.0	30.0	9.7	8.2	12.1	52.1	44.3	63.1	49.1	9.4
<b>TOTAL OCEAN FISHERIES</b>											
Commercial Troll	35.6	25.0	15.0	9.5	6.9	3.4	30.8	22.7	11.1	60.9	6.9
Recreational	54.4	44.5	30.0	16.9	13.3	12.1	86.1	67.4	63.1	130.7	29.8
<b>INSIDE FISHERIES:</b>											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	13.0	15.0	17.0	3.1	3.4	3.9	14.1	15.5	17.4	22.8	6.3 <sup>e/</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/ The commercial fishery in this area is closed between Humboldt South Jetty and Horse Mountain.

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

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

TABLE 7a. Expected coastwide lower Columbia Natural (LCN), Oregon coastal natural (OCN), and Rogue/Klamath (RK) coho, and Lower Columbia River (LCR) natural tule Chinook exploitation rates by fishery for 2020 ocean fisheries management Alternatives - Council adopted (QTA).

Fishery	Exploitation Rate (Percent)									LCR Tule Chinook		
	LCN Coho			OCN Coho			RK Coho					
	I	II	III	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	2.3%	2.5%
BRITISH COLUMBIA	0.3%	0.3%	0.3%	0.6%	0.6%	0.6%	0.5%	0.4%	0.5%	12.4%	12.6%	13.2%
PUGET SOUND/STRAIT	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.7%	0.8%
<b>NORTH OF CAPE FALCON</b>												
Treaty Indian Ocean Troll	0.9%	0.7%	0.3%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	1.8%	1.5%	1.2%
Recreational	4.3%	3.1%	0.0%	0.7%	0.5%	0.0%	0.0%	0.0%	0.0%	4.0%	3.2%	0.0%
Non-Indian Troll	1.6%	0.8%	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	5.2%	3.9%	0.0%
<b>SOUTH OF CAPE FALCON</b>												
Recreational:										0.1%	0.2%	0.2%
Cape Falcon to Humbug Mt.	3.6%	3.3%	3.9%	6.7%	6.3%	6.6%	0.6%	0.5%	0.8%	-	-	-
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.1%	0.0%	-	-	-
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%	0.7%	0.6%	0.2%	-	-	-
Fort Bragg	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.7%	0.7%	0.7%	-	-	-
South of Pt. Arena	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.3%	0.3%	0.3%	-	-	-
Troll:										1.2%	1.3%	1.2%
Cape Falcon to Humbug Mt.	0.4%	0.5%	0.4%	0.6%	0.6%	0.5%	0.1%	0.1%	0.1%	-	-	-
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	-
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.6%	0.0%	-	-	-
Fort Bragg	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	-	-	-
South of Pt. Arena	0.0%	0.0%	0.0%	0.3%	0.4%	0.4%	0.2%	0.2%	0.3%	-	-	-
BUOY 10	2.3%	2.5%	2.8%	0.1%	0.2%	0.2%	0.0%	0.0%	0.0%			
ESTUARY/FRESHWATER	NA	NA	NA	1.4%	1.4%	1.4%	NA	NA	NA	8.2%	8.4%	9.2%
<b>TOTAL<sup>a/</sup></b>	<b>11.4%</b>	<b>8.9%</b>	<b>5.2%</b>	<b>11.7%</b>	<b>11.1%</b>	<b>10.3%</b>	<b>3.2%</b>	<b>3.5%</b>	<b>2.7%</b>	<b>35.9%</b>	<b>34.2%</b>	<b>28.3%</b>

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

TABLE 7b. Expected coastwide lower Columbia Natural (LCN), Oregon coastal natural (OCN), and Rogue/Klamath (RK) coho, and Lower Columbia River (LCR) natural tule Chinook exploitation rates by fishery for 2020 ocean fisheries management Alternatives - Council adopted (MT).

Fishery	Exploitation Rate (Percent)											
	LCN Coho			OCN Coho			RK Coho			LCR Tule Chinook		
	I	II	III	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	2.3%	2.5%
BRITISH COLUMBIA	0.3%	0.3%	0.3%	0.6%	0.6%	0.6%	0.5%	0.4%	0.5%	12.3%	12.6%	13.2%
PUGET SOUND/STRAIT	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.7%	0.8%
NORTH OF CAPE FALCON												
Treaty Indian Ocean Troll	2.5%	1.9%	1.3%	0.6%	0.4%	0.3%	0.0%	0.0%	0.0%	2.5%	2.0%	1.5%
Recreational	4.3%	3.1%	0.0%	0.7%	0.5%	0.0%	0.0%	0.0%	0.0%	4.0%	3.2%	0.0%
Non-Indian Troll	1.6%	0.8%	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	5.1%	3.9%	0.0%
SOUTH OF CAPE FALCON												
Recreational:										0.1%	0.2%	0.2%
Cape Falcon to Humbug Mt.	3.6%	3.3%	3.9%	6.7%	6.3%	6.6%	0.6%	0.5%	0.8%	-	-	-
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.1%	0.0%	-	-	-
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%	0.7%	0.6%	0.2%	-	-	-
Fort Bragg	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.7%	0.7%	0.7%	-	-	-
South of Pt. Arena	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.3%	0.3%	0.3%	-	-	-
Troll:										1.2%	1.3%	1.2%
Cape Falcon to Humbug Mt.	0.4%	0.5%	0.4%	0.6%	0.6%	0.5%	0.1%	0.1%	0.1%	-	-	-
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	-	-
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.6%	0.0%	-	-	-
Fort Bragg	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	-	-	-
South of Pt. Arena	0.0%	0.0%	0.0%	0.3%	0.4%	0.4%	0.2%	0.2%	0.3%	-	-	-
BUOY 10	2.3%	2.5%	2.8%	0.1%	0.2%	0.2%	0.0%	0.0%	0.0%			
ESTUARY/FRESHWATER	NA	NA	NA	1.4%	1.4%	1.4%	NA	NA	NA	8.1%	8.4%	9.2%
<b>TOTAL<sup>a/</sup></b>	<b>13.0%</b>	<b>10.1%</b>	<b>6.1%</b>	<b>12.1%</b>	<b>11.4%</b>	<b>10.5%</b>	<b>3.2%</b>	<b>3.5%</b>	<b>2.7%</b>	<b>36.5%</b>	<b>34.6%</b>	<b>28.5%</b>

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

TABLE 8. Projected coho mark rates for 2020 fisheries under base period fishing patterns (percent marked).

Area	Fishery	June	July	August	Sept
Canada					
Johnstone Strait	Recreational	--	41%	39%	--
West Coast Vancouver Island	Recreational	56%	50%	46%	47%
North Georgia Strait	Recreational	57%	60%	59%	55%
South Georgia Strait	Recreational	29%	62%	47%	61%
Juan de Fuca Strait	Recreational	54%	54%	55%	52%
Johnstone Strait	Troll	65%	58%	48%	54%
NW Vancouver Island	Troll	54%	45%	46%	23%
SW Vancouver Island	Troll	58%	54%	54%	53%
Georgia Strait	Troll	64%	61%	62%	54%
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	55%	55%	55%	54%
Strait of Juan de Fuca (Area 6)	Recreational	55%	56%	56%	53%
San Juan Island (Area 7)	Recreational	57%	64%	57%	43%
North Puget Sound (Areas 6 & 7A)	Net	--	63%	63%	46%
Council Area					
Neah Bay (Area 4/4B)	Recreational	50%	56%	54%	56%
LaPush (Area 3)	Recreational	53%	56%	57%	55%
Westport (Area 2)	Recreational	57%	57%	56%	52%
Columbia River (Area 1)	Recreational	60%	59%	58%	58%
Tillamook	Recreational	55%	53%	48%	33%
Newport	Recreational	52%	49%	46%	34%
Coos Bay	Recreational	41%	39%	28%	16%
Brookings	Recreational	35%	25%	23%	7%
Neah Bay (Area 4/4B)	Troll	55%	56%	54%	51%
LaPush (Area 3)	Troll	56%	57%	54%	54%
Westport (Area 2)	Troll	53%	55%	55%	57%
Columbia River (Area 1)	Troll	57%	57%	56%	57%
Tillamook	Troll	55%	53%	51%	50%
Newport	Troll	52%	51%	46%	44%
Coos Bay	Troll	42%	39%	34%	23%
Brookings	Troll	31%	34%	36%	49%
Columbia River					
Buoy 10	Recreational	--	--	--	61%

TABLE 9a. Preliminary projected exvessel value under Council-adopted 2020 non-Indian commercial troll regulatory Alternatives compared to 2019 and the 2015-2019 average (in inflation-adjusted dollars) (QTA).

Management Area	Alternative	Exvessel Value (thousands of dollars) <sup>a/</sup>				
		2020 Projected <sup>b/</sup>	2019 Actual	Percent Change from 2019	2015-2019 Average	Percent Change From 2015-2019 Average
North of Cape Falcon	I	2,475	1,941	+27%	2,825	-12%
	II	1,862		-4%		-34%
	III	0		-100%		-100%
Cape Falcon to Humbug Mt.	I	3,235	1,890	+71%	3,337	-3%
	II	3,262		+73%		-2%
	III	2,511		+33%		-25%
Humbug Mt. to OR/CA Border	I	117	143	-18%	199	-41%
	II	81		-43%		-59%
	III	43		-70%		-78%
OR/CA Border to Horse Mt.	I	0	314	-100%	212	-100%
	II	201		-36%		-5%
	III	0		-100%		-100%
Horse Mt. to Pt. Arena	I	1,217	646	+88%	1,592	-24%
	II	69		-89%		-96%
	III	69		-89%		-96%
Pt. Arena to Pigeon Pt.	I	5,213	9,952	-48%	4,652	+12%
	II	5,988		-40%		+29%
	III	4,318		-57%		-7%
South of Pigeon Pt.	I	2,555	6,344	-60%	2,583	-1%
	II	2,906		-54%		+12%
	III	4,347		-31%		+68%
Total South of Cape Falcon	I	12,336	19,288	-36%	12,576	-2%
	II	12,507		-35%		-1%
	III	11,288		-41%		-10%
West Coast Total	I	14,811	21,229	-30%	15,400	-4%
	II	14,369		-32%		-7%
	III	11,288		-47%		-27%

a/ Values are inflation-adjusted to 2019 dollars. Exvessel values are not comparable to the income impacts shown in Table 10a.

b/ Projections are based on expected catches in the Council management area and estimated 2019 average weights and exvessel prices.

TABLE 9b. Preliminary projected exvessel value under Council-adopted 2020 non-Indian commercial troll regulatory Alternatives compared to 2019 and the 2015-2019 average (in inflation-adjusted dollars) (MT).

Management Area	Alternative	Exvessel Value (thousands of dollars) <sup>a/</sup>				
		2020 Projected <sup>b/</sup>	2019 Actual	Percent Change from 2019	2015-2019 Average	Percent Change From 2015-2019 Average
North of Cape Falcon	I	2,475	1,941	+27%	2,825	-12%
	II	1,862		-4%		-34%
	III	0		-100%		-100%
Cape Falcon to Humbug Mt.	I	3,235	1,890	+71%	3,337	-3%
	II	3,262		+73%		-2%
	III	2,511		+33%		-25%
Humbug Mt. to OR/CA Border	I	117	143	-18%	199	-41%
	II	81		-43%		-59%
	III	43		-70%		-78%
OR/CA Border to Horse Mt.	I	0	314	-100%	212	-100%
	II	201		-36%		-5%
	III	0		-100%		-100%
Horse Mt. to Pt. Arena	I	1,217	646	+88%	1,592	-24%
	II	69		-89%		-96%
	III	69		-89%		-96%
Pt. Arena to Pigeon Pt.	I	5,213	9,952	-48%	4,652	+12%
	II	5,988		-40%		+29%
	III	4,318		-57%		-7%
South of Pigeon Pt.	I	2,555	6,344	-60%	2,583	-1%
	II	2,906		-54%		+12%
	III	4,347		-31%		+68%
Total South of Cape Falcon	I	12,336	19,288	-36%	12,576	-2%
	II	12,507		-35%		-1%
	III	11,288		-41%		-10%
West Coast Total	I	14,811	21,229	-30%	15,400	-4%
	II	14,369		-32%		-7%
	III	11,288		-47%		-27%

a/ Values are inflation-adjusted to 2019 dollars. Exvessel values are not comparable to the income impacts shown in Table 10b.

b/ Projections are based on expected catches in the Council management area and estimated 2019 average weights and exvessel prices.

TABLE 10a. Preliminary projected angler trips and coastal community income impacts generated under Council-adopted 2020 recreational ocean salmon fishery regulatory Alternatives compared to 2019 and the 2015-2019 average (in inflation-adjusted dollars) (QTA).

Management Area	Alternative	Angler Trips (thousands)			Community Income Impacts (thousands of dollars) <sup>a/</sup>			Percent Change in Income Impacts	
		Estimates Based on the Options	2019 Actual	2015-2019 Avg.	Estimates Based on the Options	2019 Actual	2015-2019 Avg.	Compared to 2019	Compared to 2015-2019 Avg.
North of Cape Falcon <sup>b/</sup>	I	33.2	80.4	71.2	4,474	10,823	10,127	-59%	-56%
	II	24.9			3,360			-69%	-67%
	III	0.0			0			-100%	-100%
Cape Falcon to Humbug Mt.	I	53.2	75.2	47.0	3,941	5,569	3,457	-29%	+14%
	II	54.8			4,057			-27%	+17%
	III	60.5			4,480			-20%	+30%
Humbug Mt. to OR/CA Border	I	6.0	4.4	5.3	605	271	326	+123%	+86%
	II	3.6			366			+35%	+12%
	III	1.2			123			-55%	-62%
OR/CA Border to Horse Mt.	I	9.9	7.7	6.6	1,009	954	805	+6%	+25%
	II	9.2			930			-3%	+15%
	III	3.7			374			-61%	-54%
Horse Mt. to Pt. Arena	I	18.0	7.6	8.7	3,042	1,284	1,396	+137%	+118%
	II	18.0			3,042			+137%	+118%
	III	18.0			3,042			+137%	+118%
Pt. Arena to Pigeon Pt.	I	65.1	58.1	53.5	13,406	14,113	12,874	-5%	+4%
	II	65.1			13,396			-5%	+4%
	III	61.6			12,680			-10%	-2%
South of Pigeon Pt.	I	34.2	30.3	16.5	7,043	4,078	2,189	+73%	+222%
	II	34.1			7,010			+72%	+220%
	III	33.8			6,956			+71%	+218%
Total South of Cape Falcon	I	186.5	183.3	137.5	29,047	26,269	21,047	+11%	+38%
	II	184.7			28,801			+10%	+37%
	III	178.8			27,655			+5%	+31%
West Coast Total	I	219.7	263.6	208.7	33,520	37,092	31,174	-10%	+8%
	II	209.7			32,161			-13%	+3%
	III	178.8			27,655			-25%	-11%

a/ Income impacts are not comparable to the exvessel values shown in Table 9a. All dollar values are expressed in inflation-adjusted 2019 dollars.

b/ Does not include Buoy 10 fishery.



TABLE 10b. Preliminary projected angler trips and coastal community income impacts generated under Council-adopted 2020 recreational ocean salmon fishery regulatory Alternatives compared to 2019 and the 2015-2019 average (in inflation-adjusted dollars) (MT).

Management Area	Alternative	Angler Trips (thousands)			Community Income Impacts (thousands of dollars) <sup>a/</sup>			Percent Change in Income Impacts	
		Estimates Based on the Options	2019 Actual	2015-2019 Avg.	Estimates Based on the Options	2019 Actual	2015-2019 Avg.	Compared to 2019	Compared to 2015-2019 Avg.
North of Cape Falcon <sup>b/</sup>	I	33.2	80.4	71.2	4,474	10,823	10,127	-59%	-56%
	II	24.9			3,360			-69%	-67%
	III	0.0			0			-100%	-100%
Cape Falcon to Humbug Mt.	I	53.2	75.2	47.0	3,941	5,569	3,457	-29%	+14%
	II	54.8			4,057			-27%	+17%
	III	60.5			4,480			-20%	+30%
Humbug Mt. to OR/CA Border	I	6.0	4.4	5.3	605	271	326	+123%	+86%
	II	3.6			366			+35%	+12%
	III	1.2			123			-55%	-62%
OR/CA Border to Horse Mt.	I	9.9	7.7	6.6	1,009	954	805	+6%	+25%
	II	9.2			930			-3%	+15%
	III	3.7			374			-61%	-54%
Horse Mt. to Pt. Arena	I	18.0	7.6	8.7	3,042	1,284	1,396	+137%	+118%
	II	18.0			3,042			+137%	+118%
	III	18.0			3,042			+137%	+118%
Pt. Arena to Pigeon Pt.	I	65.1	58.1	53.5	13,406	14,113	12,874	-5%	+4%
	II	65.1			13,396			-5%	+4%
	III	61.6			12,680			-10%	-2%
South of Pigeon Pt.	I	34.2	30.3	16.5	7,043	4,078	2,189	+73%	+222%
	II	34.1			7,010			+72%	+220%
	III	33.8			6,956			+71%	+218%
Total South of Cape Falcon	I	186.5	183.3	137.5	29,047	26,269	21,047	+11%	+38%
	II	184.7			28,801			+10%	+37%
	III	178.8			27,655			+5%	+31%
West Coast Total	I	219.7	263.6	208.7	33,520	37,092	31,174	-10%	+8%
	II	209.7			32,161			-13%	+3%
	III	178.8			27,655			-25%	-11%

a/ Income impacts are not comparable to the exvessel values shown in Table 9b. All dollar values are expressed in inflation-adjusted 2019 dollars.

b/ Does not include Buoy 10 fishery.

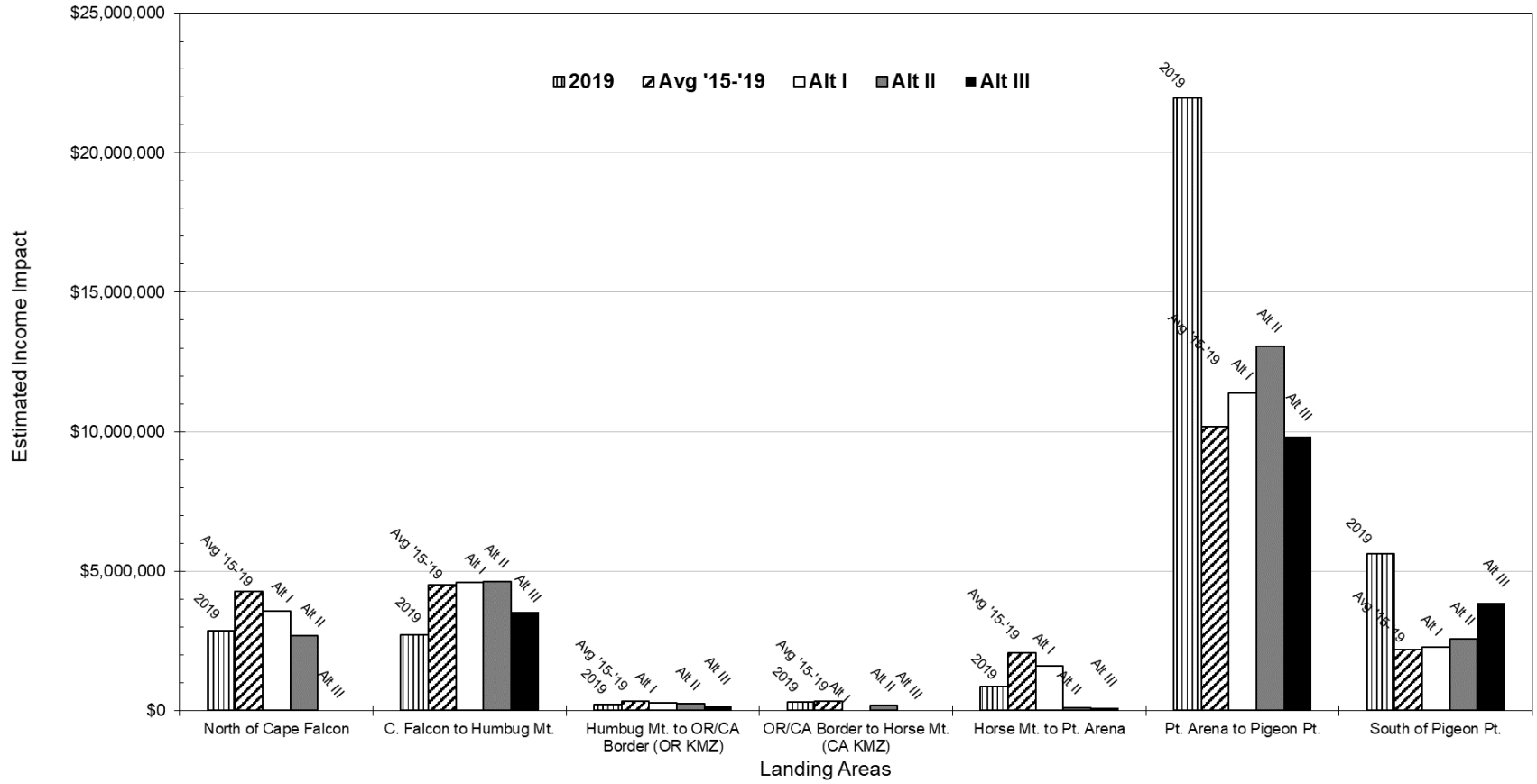


FIGURE 1a. Projected community income impacts associated with landings projected under the Council adopted 2020 commercial fishery Alternatives compared to 2019 and the 2015-2019 average (in inflation-adjusted dollars) (QTA).

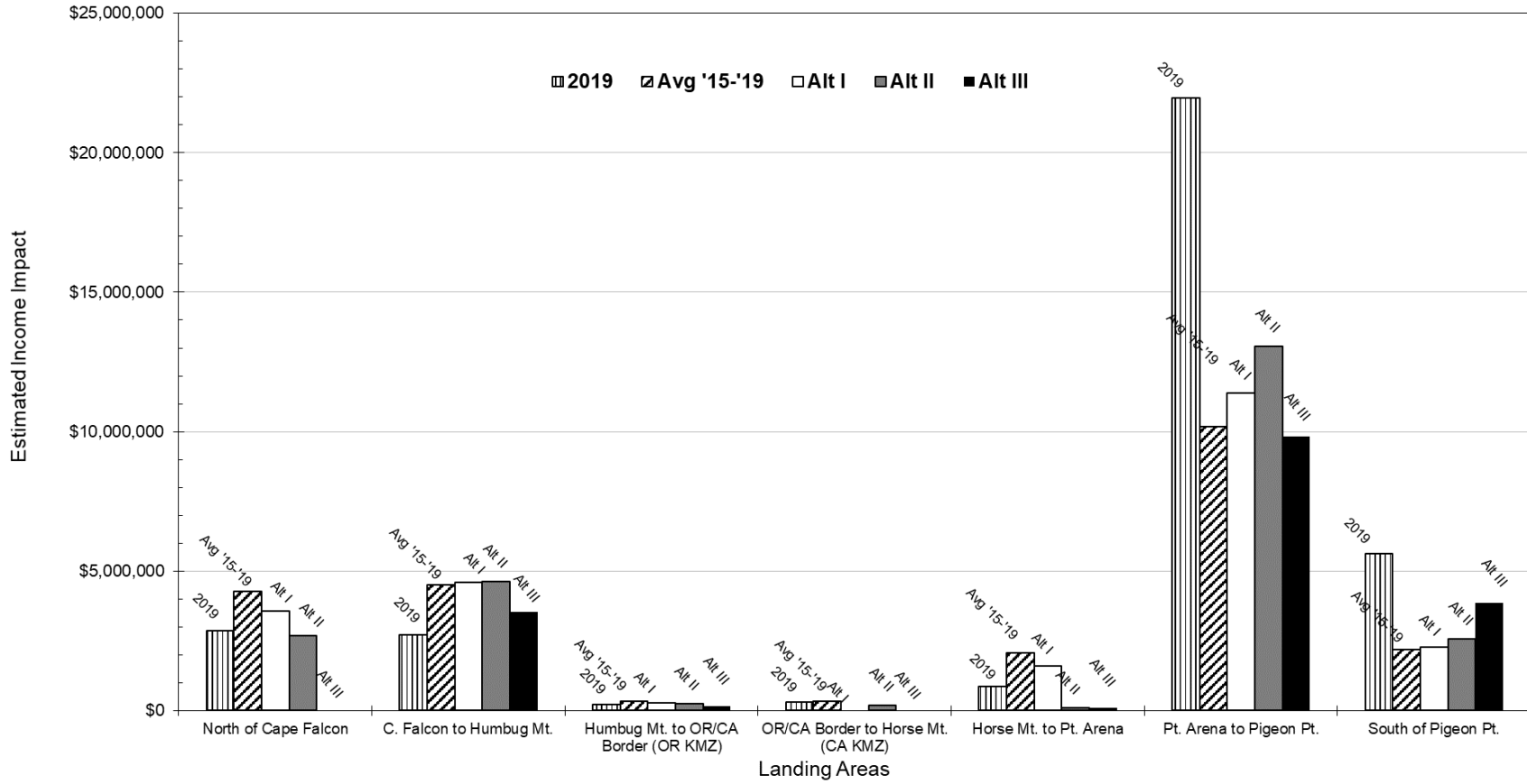


FIGURE 1b. Projected community income impacts associated with landings projected under the Council adopted 2020 commercial fishery Alternatives compared to 2019 and the 2015-2019 average (in inflation-adjusted dollars) (MT).

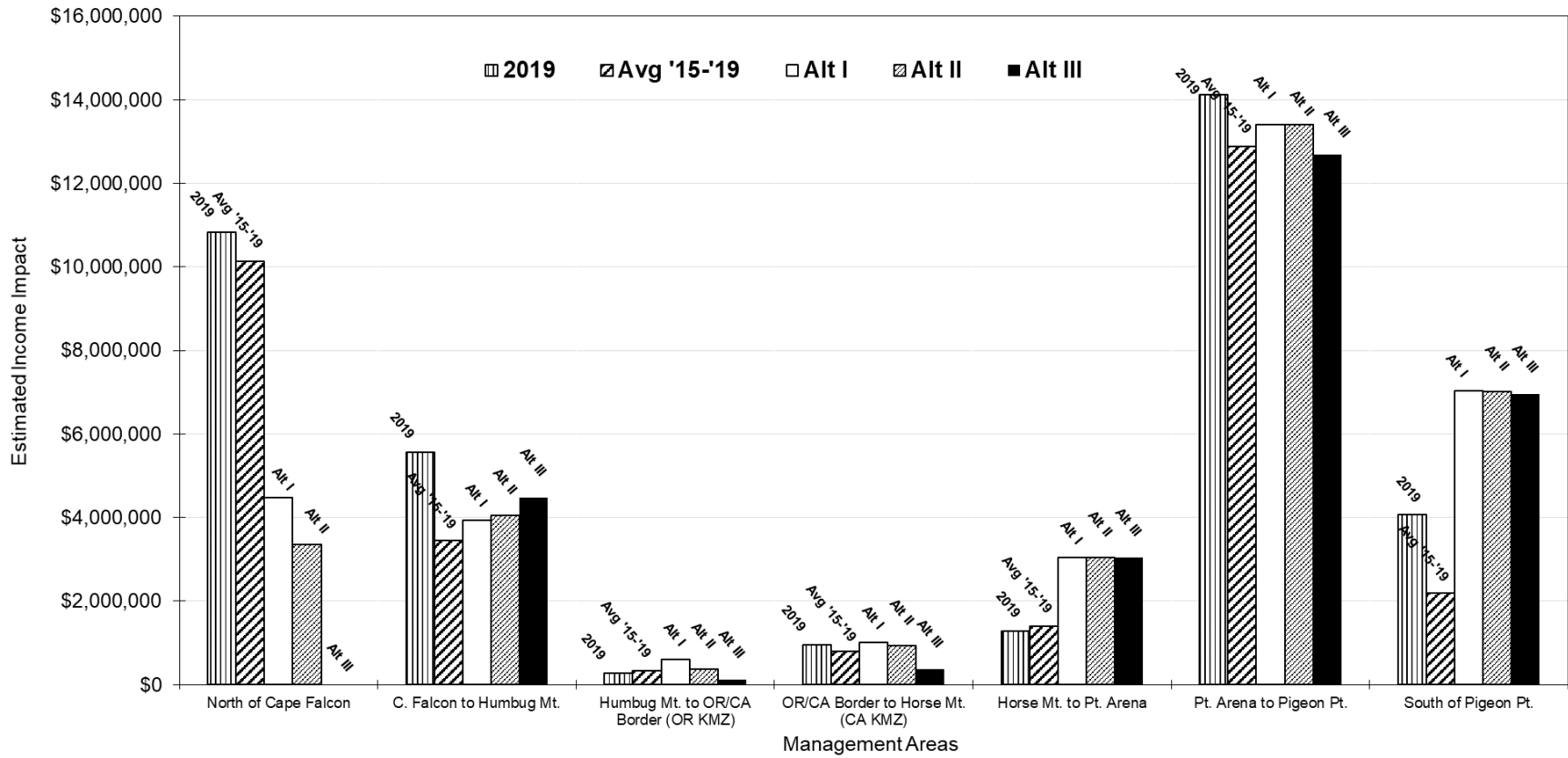


FIGURE 2a. Projected community income impacts associated with angler effort projected under the Council adopted 2020 recreational fishery Alternatives compared to 2019 and the 2015-2019 average (in inflation-adjusted dollars) (QTA).

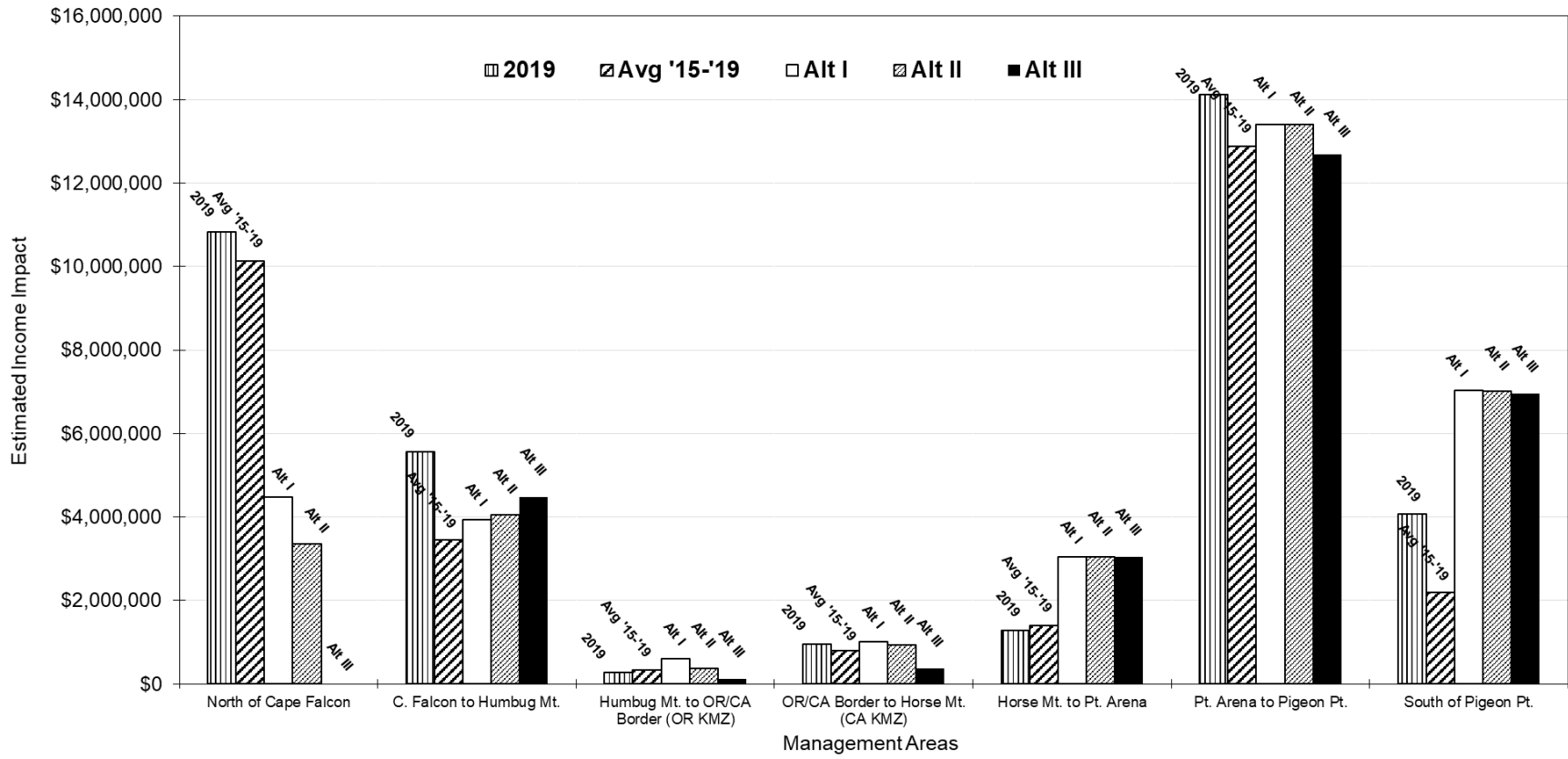


FIGURE 2b. Projected community income impacts associated with angler effort projected under the Council adopted 2020 recreational fishery Alternatives compared to 2019 and the 2015-2019 average (in inflation-adjusted dollars) (MT).

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

Table A-1. Sacramento River winter run Chinook age-3 ocean impact rate south of Pt. Arena by fishery and Alternative. The age-3 SRWC impact rate was projected for each of the proposed 2020 fishing season Alternatives. The impacts are displayed as a percent for each Alternative by fishery, port area, and month. Max rate: 20%.

Commercial										Recreational										
<b>Alternative I</b> 16.8 Total										<b>Alternative I</b>										
Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total	Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.11	0.50	0.45	0.36	0.19	0.07			1.68	SF	0.22	0.89	1.30	1.90	0.69	0.11	0.20	0.00		5.32
MO	0.46	1.48	0.49	0.75					3.18	MO	1.25	0.61	1.07	2.48	1.10	0.08	0.00			6.59
Total	0.56	1.98	0.94	1.11	0.19	0.07	0.00	0.00	4.86	Total	1.47	1.50	2.37	4.38	1.79	0.18	0.20	0.00	0.00	11.90
<b>Alternative II</b> 17.7 Total										<b>Alternative II</b>										
Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total	Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.11	0.64	0.38	0.63	0.19	0.07			2.02	SF	0.22	0.89	1.30	1.88	0.69	0.11	0.19			5.29
MO	0.43	2.18	0.42	0.77					3.80	MO	1.25	0.61	1.07	2.46	1.09	0.07				6.55
Total	0.54	2.82	0.80	1.40	0.19	0.07	0.00	0.00	5.82	Total	1.47	1.50	2.37	4.34	1.78	0.17	0.19	0.00	0.00	11.83
<b>Alternative III</b> 20.0 Total										<b>Alternative III</b>										
Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total	Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.14	0.46		0.44	0.18	0.07			1.29	SF	0.22	0.20	0.79	1.91	0.68	0.10	0.18			4.08
MO	0.43	2.35	2.82	2.54					8.15	MO	1.25	0.61	1.08	2.49	1.08	0.02				6.53
Total	0.57	2.81	2.82	2.98	0.18	0.07	0.00	0.00	9.44	Total	1.47	0.81	1.87	4.40	1.76	0.12	0.18	0.00	0.00	10.61

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

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

Commercial											Recreational											
<b>Alternative I</b>											<b>Alternative I</b>											
<i>36,213 natural area spawners, 25.0% spawner reduction rate, 8.9% age-4 ocean harvest rate</i>																						
Port Area	Fall 2019		Summer 2020						Summer Total	Year Total	Port Area	Fall 2019			Summer 2020						Summer Total	Year Total
	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug				Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug		
NO	60	0		32	90	40	89	354	605	665	NO	0	0		0	0	0	0	18	7	25	25
CO		0		94	166	191	363	1,147	1,961	1,961	CO	0	0	0	0	0	2	12	36	31	81	81
KO		0			40	74	50		164	164	KO		0				2	42	88		132	132
KC											KC							220	227		447	447
FB								1,202	1,202	1,202	FB	0	0	0		5	39	89	143	34	310	310
SF		0			322	773	1,116	425	2,636	2,636	SF	0	0			27	28	115	138	10	318	318
MO					167	112	65	2	346	346	MO					28	5	9	21	3	66	66
Total	60	0		126	785	1,190	1,683	3,131	6,915	6,975	Total	0	0	0	0	60	76	487	671	86	1,380	1,380
<b>Alternative II</b>											<b>Alternative II</b>											
<i>36,208 natural area spawners, 25.0% spawner reduction rate, 9.3% age-4 ocean harvest rate</i>																						
Port Area	Fall 2019		Summer 2020						Summer Total	Year Total	Port Area	Fall 2019			Summer 2020						Summer Total	Year Total
	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug				Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug		
NO	60	0		32	90	40	88	367	617	677	NO	0	0		0	0	0	0	18	10	28	28
CO		0		94	166	191	361	1,190	2,002	2,002	CO	0	0	0	0	0	2	12	36	32	82	82
KO		0			42	53			95	95	KO		0				2	42	25		69	69
KC							362	200	298	860	KC							176	226		402	402
FB											FB	0	0	0		5	39	89	142	34	309	309
SF		0			322	994	951	753	3,020	3,020	SF	0	0			27	28	115	138	10	318	318
MO					159	164	55	2	380	380	MO					28	5	9	21	3	66	66
Total	60	0		126	779	1,804	1,655	2,610	6,974	7,034	Total	0	0	0	0	60	76	444	606	89	1,275	1,275
<b>Alternative III</b>											<b>Alternative III</b>											
<i>40,714 natural area spawners, 15.7% spawner reduction rate, 6.1% age-4 ocean harvest rate</i>																						
Port Area	Fall 2019		Summer 2020						Summer Total	Year Total	Port Area	Fall 2019			Summer 2020						Summer Total	Year Total
	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug				Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug		
NO	60	0			90	40	89	459	678	738	NO	0	0		0	0	0	0	18	19	37	37
CO		0			166	192	365	290	1,013	1,013	CO	0	0	0	0	0	2	12	36	37	87	87
KO		0			42				42	42	KO		0					15	14		29	29
KC											KC								140		140	140
FB											FB	0	0	0		5	39	89	143	35	311	311
SF		0			411	700		548	1,659	1,659	SF	0	0			27	13	113	139	10	302	302
MO					160	176	372	7	715	715	MO					28	5	9	21	3	66	66
Total	60	0			870	1,108	825	1,305	4,108	4,168	Total	0	0	0	0	60	60	238	511	103	972	972

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

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

Commercial											Recreational											
Alternative I 204,541 Total											Alternative I											
Port Area	Fall 2019		Summer 2020						Summer Total	Year Total	Port Area	Fall 2019			Summer 2020						Summer Total	Year Total
	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug			Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			
NO	187	0	1,340	3,361	2,265	3,866	4,865	15,697	15,884	NO	39	0		8	5	9	38	329	68	457	496	
CO	0	0	1,992	2,805	3,096	1,637	2,815	12,345	12,345	CO	0	0		2	3	11	112	355	296	779	779	
KO				0	188	293	147	628	628	KO	0					101	198	360		659	659	
KC										KC	27						919	1,033		1,952	1,979	
FB								11,417	11,417	FB	76	0		187	633	1,158	2,408	867	5,253	5,329		
SF	4,929	561		17,165	20,760	18,241	10,317	66,483	71,973	SF	2,844	296		2,074	3,804	6,150	11,973	6,604	30,605	33,745		
MO				18,617	13,579	3,466	738	36,400	36,400	MO				6,262	1,702	1,951	2,538	454	12,907	12,907		
<b>Total</b>	<b>5,116</b>	<b>561</b>	<b>3,332</b>	<b>42,137</b>	<b>39,994</b>	<b>27,357</b>	<b>30,151</b>	<b>142,971</b>	<b>148,648</b>	<b>Total</b>	<b>2,986</b>	<b>296</b>	<b>10</b>	<b>8,531</b>	<b>6,259</b>	<b>10,527</b>	<b>18,995</b>	<b>8,289</b>	<b>52,611</b>	<b>55,893</b>		
Alternative II 211,257 Total											Alternative II											
Port Area	Fall 2019		Summer 2020						Summer Total	Year Total	Port Area	Fall 2019			Summer 2020						Summer Total	Year Total
	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug			Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			
NO	187	0	1,340	3,361	2,265	3,866	5,068	15,900	16,087	NO	39	0		8	5	9	38	329	90	479	518	
CO	0	0	1,992	2,805	3,096	1,637	2,932	12,462	12,462	CO	0	0		2	3	11	112	355	307	790	790	
KO					592	209		801	801	KO	0					101	198	105		404	404	
KC						543	750	333	1,626	1,626	KC	27					735	1,033		1,768	1,795	
FB										FB	76	0		187	633	1,158	2,408	867	5,253	5,329		
SF	4,929	561		17,165	26,691	15,635	18,359	77,850	83,340	SF	2,844	296		2,074	3,804	6,150	11,973	6,604	30,605	33,745		
MO				17,789	19,936	2,971	759	41,455	41,455	MO				6,262	1,702	1,951	2,538	454	12,907	12,907		
<b>Total</b>	<b>5,116</b>	<b>561</b>	<b>3,332</b>	<b>41,712</b>	<b>52,740</b>	<b>24,859</b>	<b>27,451</b>	<b>150,094</b>	<b>155,771</b>	<b>Total</b>	<b>2,986</b>	<b>296</b>	<b>10</b>	<b>8,531</b>	<b>6,259</b>	<b>10,343</b>	<b>18,739</b>	<b>8,322</b>	<b>52,204</b>	<b>55,486</b>		
Alternative III 197,800 Total											Alternative III											
Port Area	Fall 2019		Summer 2020						Summer Total	Year Total	Port Area	Fall 2019			Summer 2020						Summer Total	Year Total
	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug			Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			
NO	187	0		3,361	2,265	3,866	6,214	15,706	15,893	NO	39	0		8	5	9	38	329	169	558	597	
CO	0	0		2,805	3,096	1,637	704	8,242	8,242	CO	0	0		2	3	11	112	355	347	830	830	
KO					592			592	592	KO	0						73	58		131	131	
KC										KC	27							633		633	660	
FB										FB	76	0		187	633	1,158	2,408	867	5,253	5,329		
SF	4,929	561		21,871	18,782		13,114	53,767	59,257	SF	2,844	296		2,074	1,963	6,150	11,973	6,604	28,764	31,904		
MO				17,789	21,367	19,769	2,535	61,460	61,460	MO				6,262	1,702	1,951	2,538	454	12,907	12,907		
<b>Total</b>	<b>5,116</b>	<b>561</b>		<b>46,418</b>	<b>45,511</b>	<b>25,271</b>	<b>22,566</b>	<b>139,766</b>	<b>145,443</b>	<b>Total</b>	<b>2,986</b>	<b>296</b>	<b>10</b>	<b>8,531</b>	<b>4,318</b>	<b>9,482</b>	<b>18,293</b>	<b>8,441</b>	<b>49,075</b>	<b>52,357</b>		

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



## APPENDIX B: NEPA AND ESA ANALYSES INCORPORATED BY REFERENCE

Several documents supporting the analyses of effects to the environment from the Alternatives have been incorporated by reference. Those documents are described and passages relevant to analyses contained in this EA are excerpted below.

### NMFS 2003: West Coast Salmon Harvest Programmatic EIS

This document evaluates how NMFS reviews annual salmon fishery plans in three jurisdictions, the North Pacific Fishery Management Council for Southeast Alaska; the Pacific Fishery Management Council for the Washington, Oregon, and California coast; and *U.S. v. Oregon* for the Columbia River Basin. In general, NMFS seeks to implement fisheries that are consistent with a variety of statutory and legal obligations related to resource conservation, socioeconomic benefits associated with resource use, and treaty trust obligations. Fishery plans are developed annually within the context of framework plans to meet the year-specific circumstances related to the status of stocks affected by the fisheries. This final PEIS evaluates different ways to balance these objectives and different strategies that can be used that may provide better solutions for meeting the obligations and objectives of the respective framework plans. The Alternatives considered in this final PEIS are programmatic in nature and are designed to provide an overview of fishery management methods and strategies that can be implemented as part of the annual planning processes.

This document includes the following statements relative to Council area salmon fisheries:

*While the levels of salmon catch fluctuate from year to year, the amount of groundfish taken as incidental catch is very low so that changes in the salmon fishery do not substantially alter the projections for harvest-related mortality in the groundfish fishery.*

*Other Council managed species such as halibut, highly migratory species (draft FMP), and coastal pelagic species are also landed jointly with salmon. For all of these stocks, fish caught on the same trip with salmon are documented. Data on the commercial segment of these fisheries show the co-occurrence rates for salmon and these other Council-managed species is low, as well as for non-Council-managed species. Changes in the salmon fishery are not expected to have a substantial impact on the directed fisheries for the non-salmon stocks.*

*The commercial troll fishery off the coasts of Washington, Oregon, and California is classified as a Category III fishery, indicating a remote or no likelihood of known incidental mortality or serious injury of marine mammals. In general, recreational fishery uses the same gear and techniques as the commercial fisheries and can be assumed to have similar rates of encounters and results.*

*After excluding ESA listed marine mammals, only three species of marine mammals are defined as strategic under MMPA within the coverage area: short-finned pilot whales, mesoplodont beaked whales, and Minke whales (Barlow et al. 1997). This strategic classification denotes that projected human-caused mortality exceeds the species' annual potential biological removal estimate under MMPA standards. As with ESA listed marine mammal species, there is no record of these three species being affected by the ocean salmon fisheries managed by the Council.*

*Steller sea lion interaction with the Pacific Coast salmon fisheries is rare and NMFS has determined mortality and serious injury incidental to commercial fishing operations would have a negligible effect.<sup>1</sup> Available information indicates that Pacific Coast salmon fisheries are not likely*

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<sup>1</sup> The eastern DPS of Steller sea lions was delisted under the ESA on November 4, 2013 (78 FR 66140).

*to jeopardize the existence of the Guadalupe fur seal. No sea turtles have been reported taken by the ocean salmon fisheries off Washington, Oregon, or California. NMFS has determined that commercial fishing by Pacific Coast fisheries would pose a negligible threat to the Pacific species.*

*Short-term effects on seabirds are minimal, if any. The types of vessels used in the fishery and the conduct of the vessels are not conducive to collisions or the introduction of rats other non-indigenous species to seabird breeding colonies. Anecdotal information suggests accidental bird encounters are a rare event for commercial and recreational ocean salmon fisheries (Council 1999a). Long-term effects on seabirds from the ocean salmon fisheries are also minimal.*

*The removal of adult salmon by the ocean fisheries is not considered to significantly affect the lower trophic levels or the overall marine ecosystem because salmon are not the only or primary predator in the marine environment.*

### **PFMC 2006: EA for 2006 Ocean Salmon Management Measures**

The 2006 regulations EA analyzes the environmental and socioeconomic impacts of proposed management measures for ocean salmon fisheries occurring off the coasts of Washington, Oregon, and California. The document evaluated the 2006 annual ocean salmon harvest management measures with respect to compliance with the terms of the Salmon FMP, obligations under the Pacific Salmon Treaty (PST), and the level of protection required by all consultation standards for salmon species listed under the ESA. The range of alternatives analyzed in the 2006 Regulations EA included the effects of three levels of *de minimis* fishing strategies on KRFC when the stock was projected to fall below the 35,000 natural spawner floor for the third consecutive year. The escapement floor for naturally spawning KRFC was projected to not be attained even with complete closure of ocean salmon fisheries between Cape Falcon, Oregon, and Point Sur, California; therefore, the management measures required implementation by emergency rule. The NMFS-recommended 2006 salmon fishery management measures did not completely close fisheries between Cape Falcon and Point Sur, but limited fisheries to provide a minimum of 21,100 natural spawning adult KRFC in 2006. The 2006 EA supported NMFS' Finding of No Significant Impacts (FONSI) for the 2006 ocean salmon regulations.

*Appendix A of Amendment 18 (EFH Appendix A) describes salmon EFH and fishing and non-fishing impacts to this habitat. It found no evidence of direct gear effects on this habitat from Council-managed salmon fisheries. ... Because EFH impacts are extensively described and analyzed in EFH Appendix A, and this analysis demonstrates the fishery has no significant impacts, EFH will not be considered further in this environmental assessment.*

*Fisheries management can affect safety if, for example, season openings make it more likely that fishermen will have to go out in bad weather because fishing opportunities are limited. The EA incorporated into Amendment 8 to the Salmon FMP analyzed alternatives to adjust management measures if unsafe weather affected fishery access. The range of management measures considered for the proposed action would be within the range described in that EA. Since these types of potential impacts have been previously analyzed and found not to be significant, they are not discussed in this EA.*

### **NMFS 2009: Biological Opinion on Ocean Fisheries Effects on Southern Resident Killer Whales**

This document constitutes the National Marine Fisheries Service's (NMFS) current biological opinion (Opinion) regarding the effects of proposed Pacific coast ocean salmon fisheries conducted under the Pacific Coast Salmon Fishery Management Plan (FMP) on the Southern Resident killer whale (*Orcinus orca*) distinct population segment. On April 12, 2019 NMFS reinitiated consultation under the Endangered

Species Act (ESA) to evaluate effects of the Pacific coast ocean salmon fisheries incorporating updated scientific information since its last consultation in 2009 (memorandum from Ryan Wulff, NMFS, to Chris Yates, NMFS, dated April 12, 2019). NMFS expects to have a new biological opinion in place by May 1, 2020. A new analytical approach, utilizing the best available science, (PFMC 2020c) developed by NMFS in conjunction with PFMC will be used to assess the ocean salmon fisheries managed under the FMP.

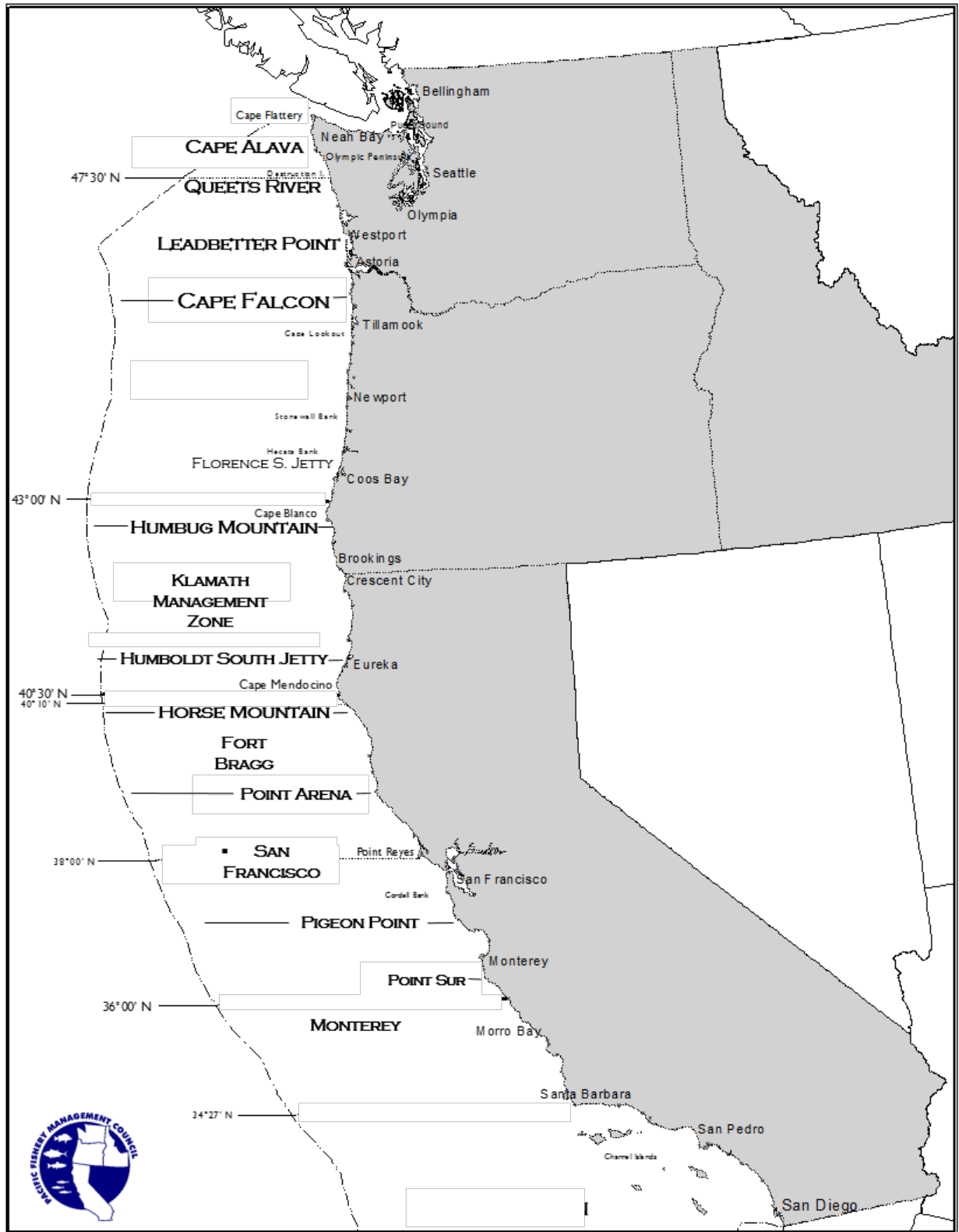


FIGURE 3. Map of Pacific West Coast with major salmon ports and management boundaries. This map is for reference only and is not intended for use in navigation or fishery regulation.