Preface to the
Environmental Assessment for
2015 Ocean Salmon Fisheries Management Measures
(XRIN 0648-XD843)

The development of annual management measures for west coast salmon fisheries is a well-documented and public process. Alternatives for annual management measures are developed at the March meeting of the Pacific Fishery Management Council (Council). At this meeting, the previous year's fisheries are reviewed, and alternatives are developed for the current year's fisheries after considering projected stock abundances, conservation objectives in the Fishery Management Plan (FMP), and compliance with the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), and other relevant laws, as well as international agreements under the Pacific Salmon Treaty (PST). Public meetings are held in Washington, Oregon, and California in late March to give the public the opportunity to provide comments on the alternatives. The Council meets again in April to consider public and agency input on the alternatives and to develop and adopt a preferred alternative. Environmental impacts of the preferred alternative are within the range of impacts analyzed for the preliminary alternatives, although new fisheries data developed between March and April, especially regarding fisheries north of Cape Falcon, may require modification of the range of impacts.

During this process, the Council and the National Marine Fisheries Service (NMFS) develop a series of documents that describe the development and analysis of the alternatives. These documents collectively form the Environmental Assessment (EA) for NMFS' analysis of the proposed action of adopting the 2015 ocean salmon fisheries management measures under the National Environmental Policy Act (NEPA). This Preface is provided to guide the reader through the three documents that, collectively, form the EA (see Table 1, below). These documents are available to the public on the Council's website (www.pcouncil.org):

> Preseason Report I (PRE I): Stock Abundance Analysis and Environmental Assessment Part 1 for 2015 Ocean Salmon Fishery Regulations (February 2015).
>
> *PRE I describes Purpose and Need, Affected Environment, and the no-action alternative.*
>
> Preseason Report II (PRE II): Proposed Alternatives and Environmental Assessment Part 2 for 2015 Ocean Salmon Fishery Regulations (March 2015).
>
> *PRE II describes the analysis of the action alternatives.*
>
> Preseason Report III (PRE III): Analysis of Council Adopted Management Measures for 2015 Ocean Salmon Fisheries (April 2015).
>
> *PRE III describes the final preferred alternative adopted by the Council.*

A fourth document, also available on the Council's website, is referenced in the above and provides some aspects of the affected environment, especially related to salmon stocks:

> Review of 2014 Ocean Salmon Fisheries (February 2015).

Table 1. Directory of NEPA elements in the Environmental Assessment for 2015 Ocean Salmon Fisheries Management Measures (XRIN 0648-XD843).

NEPA Element	**Location**
Purpose and Need	PRE I: Pages 2 – 3
Affected Environment	PRE I
Description of the Affected Environment	PRE I: Chapter I, pages 5 – 13
Affected Environment: Chinook Salmon	PRE I: Chapter II, pages 15 – 49
Affected Environment: Coho Salmon	PRE I: Chapter III, pages 51 – 76
Affected Environment: Pink Salmon	PRE I: Chapter IV, page 77
Alternatives	PRE I and PRE II
Description of No action alternative	PRE I: Chapter V, pages 79 – 97
Description of Action alternatives	PRE II: Chapter 7, pages 9 – 11, and Tables 1 – 4
Analysis of Impacts (Environmental Consequences)	PRE II: Chapter 8
Impacts on salmon stocks	PRE II: Chapter 8, pages 11 – 16, Tables 5 – 7
Socioeconomics	PRE II: Chapter 8, pages 16 – 20, Tables 9 – 10, Figures 1 – 2
Non-target Species	PRE II: Chapter 8, pages 20 – 21
Marine Mammals	PRE II: Chapter 8, page 21
ESA Listed Species	PRE II: Chapter 8, pages 21 – 22
Seabirds	PRE II: Chapter 8, page 22
Biodiversity and Ecosystem Function	PRE II: Chapter 8, page 22
Ocean and Coastal Habitats	PRE II: Chapter 8, page 22
Public Health and Safety	PRE II: Chapter 8, pages 22
Cumulative Impacts	PRE II: Chapter 8, pages 22 – 26 - 23
Final Preferred Alternative	PRE III
Description	PRE III: Tables 1 – 4
Socioeconomic Impacts	PRE III: Chapter 10, pages 13 – 14
Environmental Effects	PRE III: Chapter 11, page 14 – 16
Compliance with other Applicable Law	Addendum

ENVIRONMENTAL ASSESSMENT PART 1 FOR 2015 OCEAN SALMON FISHERY REGULATIONS

REGULATION IDENTIFIER NUMBER 0648–XD843

BASED ON

PRESEASON REPORT I

STOCK ABUNDANCE ANALYSIS

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LIST OF ACRONYMS AND ABBREVIATIONS

ABC	acceptable biological catch
ACL	annual catch limit
BY	brood year
CDFW	California Department of Fish and Wildlife
CoTC	Coho Technical Committee (of the PSC)
Council	Pacific Fishery Management Council
CRFMP	Columbia River Fishery Management Plan
CWT	coded-wire tag
EA	Environmental Assessment
EEZ	exclusive economic zone (from 3-200 miles from shore)
EIS	Environmental Impact Statement
EMAP	Environmental Monitoring and Assessment Program
ESA	Endangered Species Act
ESU	evolutionarily significant unit
F_{ABC}	exploitation rate associated with ABC
F_{ACL}	exploitation rate associated with ACL (= F_{ABC})
FMP	fishery management plan
F_{MSY}	MSY exploitation rate
F_{OFL}	exploitation rate associated with the overfishing limit (= F_{MSY}, MFMT)
FONSI	Finding of No Significant Impacts
FRAM	Fishery Regulatory Assessment Model
GAM	generalized additive models
ISBM	individual stock-based management
Jack CR	Columbia River jacks (coho)
Jack OC	Oregon coastal and Klamath River Basin jacks (coho)
Jack OPI	Jack CR + Jack OC (coho)
KMZ	Klamath management zone (ocean zone between Humbug Mountain and Horse Mountain where management emphasis is on Klamath River fall Chinook)
KOHM	Klamath Ocean Harvest Model
KRFC	Klamath River fall Chinook
KRTT	Klamath River Technical Team
LCN	lower Columbia River natural (coho)
LCR	lower Columbia River (natural tule Chinook)
LRB	lower Columbia River bright (Chinook)
LRH	lower Columbia River hatchery (tule fall Chinook returning to hatcheries below Bonneville Dam)
LRW	lower Columbia River wild (bright fall Chinook spawning naturally in tributaries below Bonneville Dam)
MCB	mid-Columbia River brights (bright hatchery fall Chinook released below McNary Dam)
MFMT	maximum fishery mortality threshold
MOC	mid-Oregon coast
MSST	minimum stock size threshold
MSM	mixed stock model
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	maximum sustainable yield
NA	not available

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOC	north Oregon coast
NS1G	National Standard 1 Guidelines
OCN	Oregon coast natural (coho)
OCNL	Oregon coast natural lake (coho)
OCNR	Oregon coast natural river (coho)
ODFW	Oregon Department of Fish and Wildlife
OFL	overfishing limit
OPI	Oregon Production Index (coho salmon stock index south of Leadbetter Point)
OPIH	Oregon Production Index public hatchery
OPITT	Oregon Production Index Technical Team
OY	Optimum Yield
PDO	Pacific Decadal Oscillation
PFMC	Pacific Fishery Management Council (Council)
PRIH	Private hatchery
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
RER	rebuilding exploitation rate
RK	Rogue/Klamath (coho)
RMP	Resource Management Plan (for exemption from ESA section 9 take prohibitions under limit 6 of the 4(d) rule)
ROPI	Rogue Ocean Production Index (Chinook)
SAB	Select Area brights
S_{ABC}	spawning escapement associated with ABC
S_{ACL}	spawning escapement associated with ACL (= S_{ABC})
SCH	Spring Creek Hatchery (tule fall Chinook returning to Spring Creek Hatchery)
SHM	Sacramento Harvest Model
SI	Sacramento Index
SJF	Strait of Juan de Fuca
S_{MSY}	MSY spawning escapement
S_{OFL}	spawning escapement associated with the overfishing limit (= S_{MSY})
SOC	south Oregon Coast
SRFC	Sacramento River fall Chinook
SRS	Stratified Random Sampling
SRWC	Sacramento River winter Chinook
STEP	Salmon Trout Enhancement Program
STT	Salmon Technical Team (formerly the Salmon Plan Development Team)
TAC	Technical Advisory Committee (*U.S. v. Oregon*)
URB	upper river brights (naturally spawning bright fall Chinook normally migrating past McNary Dam)
VSI	visual stock identification
WCVI	West Coast Vancouver Island
WDFW	Washington Department of Fish and Wildlife

INTRODUCTION

This is the second 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 salmon fishery management off the coasts of Washington, Oregon, and California. The report focuses on Chinook, coho, and pink salmon stocks that have been important in determining Council fisheries in recent years, and on stocks listed under the Endangered Species Act (ESA) with established National Marine Fisheries Service (NMFS) ESA consultation standards. This report will be formally reviewed at the Council's March 2015 meeting.

This report provides 2015 salmon stock abundance forecasts, and an analysis of the impacts of 2014 management measures, or regulatory procedures, on the projected 2015 abundance. This analysis is intended to give perspective in developing 2015 management measures. This report also constitutes the first part of an Environmental Assessment (EA) to comply with National Environmental Policy Act (NEPA) requirements for the 2015 ocean salmon management measures. An EA is used to determine whether an action being considered by a Federal agency has significant impacts. This part of the EA includes a statement of the purpose and need, a summary description of the affected environment, a description of the No-Action Alternative, and an analysis of the No-Action Alternative effects on the salmon stocks included in the Council's Salmon Fishery Management Plan (FMP).

At the November 2014 meeting, the Council adopted new conservation objectives and status determination criteria (SDCs) for Southern Oregon coastal Chinook. The Council also adopted some of these reference points for Grays Harbor fall Chinook and Willapa Bay natural coho, but was not explicit about adopting minimum stock size threshold (MSST) for these two stocks and maximum fishing mortality threshold (MFMT) for Grays Harbor fall Chinook. It is anticipated that the Council will review and address these remaining SDCs under this agenda item at its March meeting.

The table on the following page shows the SDCs to be addressed in March in highlighted cells. The STT has recommended the values shown. For MFMT for Grays Harbor Fall Chinook, the FMP describes MFMT as "generally less than or equal to F_{MSY}." Applying the spawner-recruit parameter estimates from Washington Department of Fish and Wildlife's (WDFW) analysis, recommended by the STT as the best available science, yields an F_{MSY} of 63 percent. Relevant to the MSST values, the FMP states that MSST is "generally defined as 0.5 * S_{MSY} or 0.75 * S_{MSY}," but notes there are some exceptions. The previous MSST value for Grays Harbor fall Chinook was 0.5 * S_{MSY}. Applying the same approach to the Council-adopted S_{MSY} value of 13,326 yields an MSST of 6,663. For Willapa Bay natural coho, applying the Council's general policy of MSST=0.5*S_{MSY} to the new S_{MSY} value of 17,200 yields an MSST of 8,600.

Conservation objectives and associated SDC adopted by the Council in November 2014 and those to be addressed in March 2015.

Stock	Conservation Objective	S_{MSY}	MSST	MFMT	ACL
Southern Oregon coastal Chinook	41,000 at Huntley Park	34,992	20,500 at Huntley Park	54%	NA
Willapa Bay natural coho	17,200	17,200	8,600	74%	Based on F_{ABC} and annual ocean abundance. F_{ABC} is F_{MSY} reduced by Tier 1 (5%) uncertainty
Grays Harbor fall Chinook	13,326	13,326	6,663	63%	NA

The STT and Council staff will provide two additional reports prior to the beginning of the ocean salmon season to help guide the Council's selection of annual fishery management measures: Preseason Report II and Preseason Report III. These reports will analyze the impacts of the Council's proposed alternatives and adopted fishery management recommendations, respectively. Preseason Report II will constitute the second part of the EA, and will include additional description of the affected environment relevant to the alternative management measures considered for 2015 ocean salmon fisheries, a description of the alternatives, and an analysis of the environmental consequences of the alternatives. Preseason Report II will analyze the potential impacts of a reasonable range of alternatives, which will inform the final fishery management measures included in Preseason Report III. Preseason Report III will describe and analyze the effects of the Council's final proposed action, including cumulative effects. Together, these 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.

Chapter I provides a summary of stock abundance forecasts. Chapters II and III provide detailed stock-by-stock analyses of abundance, a description of prediction methodologies, and accuracy of past abundance forecasts for Chinook and coho salmon, respectively. Chapter IV summarizes abundance and forecast information for pink salmon. Chapter V provides an assessment of 2014 regulations applied to 2015 abundance forecasts. Three appendices provide supplementary information as follows: Appendix A provides a summary of Council stocks and their management objectives; Appendix B contains the Council's current harvest allocation schedules, and Appendix C contains pertinent data for Oregon Production Index (OPI) area coho. For NEPA purposes, Chapters I-IV of this document describe the affected environment and Chapter V provides a description and analysis of the No-Action Alternative.

Purpose and Need

The purpose of this action, implementation of the 2015 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 ESA-listed salmon stocks. In achieving this purpose, management measures must take

into account the allocation of harvest among different user groups and port areas. Without this action, 2014 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 and achieve the most overall benefit to the nation.

The Salmon FMP also 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) ACLs, specified ESA consultation 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 supporting the continuance of 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 that 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 consistent with the PST 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 Standard 1 Guidelines (NS1G).

Implementation of 2015 management measures will allow fisheries to harvest surplus production of healthy natural and hatchery salmon stocks within the constraints specified under the Salmon FMP and consultation standards established for ESA-listed salmon stocks.

The reauthorization of the MSA in 2006 established new requirements to end and prevent overfishing through specification of overfishing limits (OFL), acceptable biological catch (ABC), ACLs and accountability measures (AMs). Because OFLs, ABCs, and ACLs are based on annual abundance forecasts, Preseason Report I also specifies OFLs, ABCs, and ACLs for 2015 fisheries.

STT Concerns

The forecast for Strait of Juan de Fuca coho places in the "low" category. Under the FMP and the Pacific Salmon Treaty (PST), the total allowable exploitation rate (ER) is not to exceed 20 percent. It is the only inside management unit in the "low" category. Under the terms of the coho chapter of the PST this places inside coho in a "composite low" category, under which the ER in Canadian fisheries is not to exceed 13 percent. If Canada were to fish up to their ceiling, U.S. fisheries would only be allowed a 7 percent ER on Strait of Juan de Fuca coho. However, if Canada does not fish up to their maximum rate, the U.S. fisheries can increase their ER, as long as the total does not exceed 20 percent. In past years, when Canada was managing their fisheries to minimize impacts on Upper Fraser coho, they held Canadian fisheries to an ER of less than 3 percent on upper Fraser coho. In these years their exploitation rate on Strait of Juan de Fuca coho was less than 2.5 percent. Under this scenario, the allowable ER in U.S. fisheries could be 17.5 percent or more. However, last year Canada decided to allow a 16 percent ER on upper Fraser coho, but did not announce this decision until May. Though the total allowable ER ceiling in 2015 is 20 percent, the allowable ER in U.S. fisheries could be as low as 7 percent or as high as 17.5 percent or more. The actual allowable ER in U.S. fisheries is not likely to be known until after the Council takes final regulatory action in April.

CHAPTER I: DESCRIPTION OF THE AFFECTED ENVIRONMENT

The affected environment relevant to establishing the 2015 ocean salmon fishery management measures consists of the following components:

- Target Species – Chinook, coho, and pink salmon
- ESA-listed salmon stocks; and
- Socioeconomic aspects of coastal communities, federally-recognized Tribes, and states.

A description of the historical baseline for these components of the affected environment is presented in the Review of 2014 Ocean Salmon Fisheries (PFMC 2015). The current status (2015 ocean abundance forecasts) of the environmental components expected to be affected by the 2015 ocean salmon fisheries regulation alternatives (FMP salmon stocks, including those listed under the ESA) are described in this report (Part 1 of the 2015 salmon EA); the Review of 2014 Ocean Salmon Fisheries (PFMC 2015) provides an historical description of the salmon fishery-affected environment, including stock status and socioeconomic impacts, and represents the current status of the socioeconomic component of the affected environment.

The No-Action alternative was assessed in the 2014 NEPA process for ocean salmon regulations (Preseason Reports II and III; PFMC 2014b and 2014c). In those analyses, proposed management measures were determined to have no significant impacts on several components of the affected environment. These components included:

- Non-target species – Pacific Halibut, groundfish (NMFS 2003; PFMC 2006, 2014a)
- Marine mammals – pinnipeds, killer whales (NMFS 2003, 2008; PFMC 2006, 2014a)
- Seabirds (NMFS 2003; PFMC 2006, 2014a)
- Ocean and coastal habitats, ESA critical habitat, and Essential Fish Habitat (EFH) (NMFS 2003; PFMC 2006, 2014a)
- Biodiversity and ecosystem function (NMFS 2003; PFMC 2006, 2014a)
- Unique characteristics of the geographic area (NMFS 2003; PFMC 2006, 2014a)
- Cultural, scientific, or historical resources such as those eligible for listing in the National Register of Historic Places (NMFS 2003; PFMC 2006, 2014a)
- Public health or safety (NMFS 2003; PFMC 2006, 2014a)

The 2015 No-Action alternative is not expected to differ from the 2014 action in any way that would change the effects of the action on these elements of the environment.

The component of the affected environment that is analyzed in this document consists only of the salmon stocks identified in the FMP (Appendix A). The 2015 forecast abundance of the FMP salmon stocks represents this component of the affected environment. The surviving stock after fishery-related mortality is generally referred to as spawning escapement (S), and the proportion of the stock that succumbs to fishing-related mortality is generally referred to as the exploitation rate (F); these are the metrics that constitute conservation objectives for FMP stocks, and by which effects of the alternatives to this part of the affected environment are evaluated. Thus, application of management measures (alternatives) to the abundance forecasts (affected environment) results in projected exploitation rates and spawning escapements (effects).

A description of the other components of the affected environment considered for 2015 ocean salmon fishery regulation alternatives, including socioeconomic components and updated additional information on the biological components of the environment, will be presented in Preseason Report II, to be issued after the March Council meeting.

ABUNDANCE FORECASTS

Abundance forecasts in 2015 are summarized for key Chinook and coho salmon stocks in Tables I-1 and I-2, respectively. A cursory comparison of preseason forecast and postseason abundance estimates for selected stocks is presented in Figures II-4 and III-1. More detailed analyses of this subject are covered in Chapters II (Chinook) and III (coho). Information on pink salmon abundance and forecasts is contained in Chapter IV. Council Salmon FMP conservation objectives are presented in Appendix A; allocation objectives are presented in Appendix B.

In addition to the key stocks with abundance forecasts listed in Tables I-1 and I-2, Council management decisions for the 2015 ocean salmon fishing seasons may be constrained by other stocks, such as those listed under the ESA or subject to PSC agreements, which may not have abundance forecasts made, or do not have abundance forecasts available in time for inclusion in this report. These include the following Evolutionarily Significant Units (ESUs): Sacramento River Winter, Central Valley Spring, California Coastal, Lower Columbia River (LCR) natural tule, and Snake River Fall Chinook; and Central California and Southern Oregon/Northern California coho, as well as Interior Fraser (including Thompson River) coho.

ACCEPTABLE BIOLOGICAL CATCH, ANNUAL CATCH LIMITS, AND OVERFISHING LIMITS

Amendment 16 to the Salmon FMP was approved in December 2011 to comply with the requirements of the 2006 MSA reauthorization, including specification of acceptable biological catch (ABC), annual catch limits (ACLs), overfishing limits (OFLs), and Scientific and Statistical Committee (SSC) recommendations for ABC. Amendment 16 established that ABC and ACLs were required for two stocks, Sacramento River fall Chinook (SRFC) and Klamath River fall Chinook (KRFC), which serve as indicator stocks for the Central Valley Fall and Southern Oregon/Northern California Chinook complexes, respectively. Since publication of Amendment 16, ABCs and ACL specifications have been added to the Salmon FMP for Willapa Bay natural coho. Other stocks in the FMP were not required to have ACLs either because they were components of these two stock complexes, or they were ESA-listed, hatchery stocks, or managed under an international agreement.

ABCs and ACLs are not specified for stocks that are managed under an international agreement as there is a statutory exception in the MSA to the requirement for ACLs, and the NS1Gs state that ABCs are not required if stocks meet this international exception. The NS1Gs allow the flexibility to consider alternative approaches for specifying ACLs for stocks with unusual life history characteristics like Pacific salmon, and particularly for species listed under the ESA and hatchery stocks. For hatchery stocks, broodstock goals serve as conservation objectives rather than specifying ACLs. For ESA-listed stocks, biological opinions and associated consultation standards provide necessary controls to ensure their long-term conservation.

Preseason OFLs are determined for all non-ESA-listed and non-hatchery stocks with an estimate of F_{MSY} (or Maximum Fishery Mortality Threshold, MFMT) and sufficient information available to make abundance forecasts.

Overfishing Limit

For salmon, OFL is defined in terms of spawner escapement (S_{OFL}), which is consistent with the common practice of using spawner escapement to assess stock status for salmon. S_{OFL} is determined annually based on stock abundance, in spawner equivalent units (N) and the exploitation rate F_{OFL}.

F_{OFL} is defined as being equal to F_{MSY} (or MFMT) and

S_{OFL} = N x (1 - F_{MSY}).

Acceptable Biological Catch

For salmon, ABC is defined in terms of spawner escapement (S_{ABC}), which is determined annually based on stock abundance, in spawner equivalent units (N) and the exploitation rate F_{ABC}.

S_{ABC}=N x (1 - F_{ABC})

The ABC control rule defines F_{ABC} as a fixed exploitation rate reduced from F_{MSY} to account for scientific uncertainty. The degree of the reduction in F between F_{ABC} and F_{MSY} depends on whether F_{MSY} is directly estimated (tier 1 stock) or a proxy value is used (tier 2 stock). For tier 1 stocks, F_{ABC} equals F_{MSY} reduced by five percent. For tier 2 stocks, F_{ABC} equals F_{MSY} reduced by ten percent.

Tier-1: $F_{ABC} = F_{MSY} \times 0.95$.
Tier-2: $F_{ABC} = F_{MSY} \times 0.90$.

Annual Catch Limit

ACLs are also defined in terms of spawner escapement (S_{ACL}) based on N and the corresponding exploitation rate (F_{ACL}), where the exploitation rate is a fixed value that does not change on an annual basis.

F_{ACL} is equivalent to F_{ABC} and

S_{ACL} = N x (1-F_{ACL}),

which results in S_{ACL} = S_{ABC} for each management year.

During the annual preseason salmon management process, S_{ACL} is estimated using the fixed F_{ACL} exploitation rate and the preseason forecast of N. Thus, fishery management measures must result in an expected spawning escapement greater than or equal to this preseason estimate of S_{ACL}.

STATUS DETERMINATION CRITERIA

In 2011, the Council also adopted new status determination criteria (SDC) for overfishing, approaching an overfished condition, overfished, not overfished/rebuilding, and rebuilt under FMP Amendment 16. These criteria, approved and implemented in December 2011, were:

- Overfishing occurs when a single year exploitation rate exceeds the maximum fishing mortality threshold (MFMT), which is based on the maximum sustainable yield exploitation rate (F_{MSY});
- Approaching an overfished condition occurs when the geometric mean of the two most recent postseason estimates of spawning escapement, and the current preseason forecast of spawning escapement, is less than the minimum stock size threshold (MSST);
- Overfished status occurs when the most recent 3-year geometric mean spawning escapement is less than the MSST;
- Not overfished/rebuilding status occurs when a stock has been classified as overfished and has not yet been rebuilt, and the most recent 3-year geometric mean spawning escapement is greater than the MSST but less than S_{MSY};
- A stock is rebuilt when the most recent 3-year geometric mean spawning escapement exceeds S_{MSY}.

Status determinations for overfishing, overfished, not overfished/rebuilding, and rebuilt were reported in the annual SAFE document, Review of 2014 Ocean Salmon Fisheries (PFMC 2015). Because approaching an overfished condition relies on a preseason forecast and proposed fishing regulations, that status determination is reported in Chapter V of this document. All SDC rely on the most recent

estimates available, which in some cases may be a year or more in the past because of incomplete broods or data availability; however, some status determinations reported in the SAFE document may be updated if more recent spawning escapement or exploitation rate estimates become available between the time the SAFE document and this document are published.

TABLE I-1. Preseason adult Chinook salmon stock forecasts in thousands of fish. (Page 1 of 4)

Production Source and Stock or Stock Group	2007	2008	2009	2010	2011	2012	2013	2014	2015	Methodology for 2015 Prediction and Source
Sacramento Index										
Fall	-	54.6[a/]	122.2	245.5	729.9	819.4	834.2	634.7	652.0	Log-log regression of the Sacramento Index on jack escapement from the previous year, accounting for lag-1 autocorrelated errors. STT.
Klamath River (Ocean Abundance)										
Fall	546.2	190.7	505.7	331.5	371.1	1,651.8	727.7	299.3	423.8	Linear regression analysis of age-specific ocean abundance estimates on river runs of same cohort. STT.
Oregon Coast										
North and South/Local Migrating										None.
Columbia River (Ocean Escapement)										
Upriver Spring [b/]	78.5	269.3	298.9	470.0	198.4	314.2	141.4	227.0	232.5	Log-normal sibling regressions of cohort returns in previous run years. WDFW staff.
Willamette Spring	52.0	34.0	37.6	62.7	104.1	83.4	59.8	58.7	55.4	Age-specific linear regressions of cohort returns in previous run years. ODFW staff.
Sandy Spring	7.9	6.8	5.2	3.7	5.5	4.8	6.1	5.5	5.5	Recent year average. ODFW staff.
Cowlitz Spring	6.4	5.2	4.1	12.5	6.6	8.7	5.5	7.8	11.2	Age-specific linear regressions of cohort returns in previous run years. WDFW.
Kalama Spring	4.0	3.7	0.9	0.9	0.6	0.7	0.7	0.5	1.9	Age-specific linear regressions of cohort returns in previous run years. WDFW.
Lewis Spring	5.9	3.5	2.2	6.0	3.4	2.7	1.6	1.1	1.1	Age-specific linear regressions of cohort returns in previous run years. WDFW.
Upriver Summer	45.6	52.0	70.7	88.8	91.9	91.2	73.5	67.5	73.0	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
URB Fall	182.4	162.5	259.9	310.8	398.2	353.5	432.5	973.3	500.3	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
SCH Fall	21.8	87.2	59.3	169.0	116.4	63.8	38.0	115.1	160.5	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
LRW Fall	10.1	3.8	8.5	9.7	12.5	16.2	14.2	34.2	18.9	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
LRH Fall	54.9	59.0	88.8	90.6	133.5	127.0	88.0	110.0	94.9	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
MCB Fall	68.0	54.0	94.5	72.6	100.0	90.8	105.2	360.1	113.3	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.

TABLE I-1. Preseason adult Chinook salmon stock forecasts in thousands of fish. (Page 2 of 4)

Production Source and Stock or Stock Group		2007	2008	2009	2010	2011	2012	2013	2014	2015	Methodology for 2015 Prediction and Source
Willapa Bay Fall	Natural	2.0	2.5	2.0	2.0	2.0	5.2	4.9	2.9	NA	
	Hatchery	29.8	27.0	34.8	31.1	31.1	40.5	22.2	29.5	NA	
Quinault Fall	Natural	7.3	3.7	6.9	7.6	5.9	7.7	4.0	6.0	NA	
	Hatchery	8.7	1.3	7.8	5.5	4.7	3.8	3.1	10.3	NA	
Queets Spring/Sum	Natural	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	Recent 5 year run size.
Queets Fall	Natural	2.6	3.5	4.5	4.1	2.7	5.8	3.8	3.6	4.3	Age-specific, multiple regression using siblings and PDO.
	Hatchery	1.5	7.0	1.2	9.8	1.9	1.8	0.9	0.9	1.5	Age-specific, mean return per release adjusted by brood performance.
Hoh Spring/Summer	Natural	1.6	0.9	1.1	0.8	1.0	1.0	0.9	0.9	0.8	Mean return per spawner using 5 year means, unadjusted.
Hoh Fall	Natural	2.7	2.9	2.6	3.3	2.9	2.7	3.1	2.5	2.6	Mean return per spawner using 5 year means, unadjusted.
Quillayute Spring	Hatchery	1.3	1.7	2.0	1.5	1.4	1.5	2.1	2.0	1.7	Mean return per release using most recent 2 years adjusted by previous year preformance.
Quillayute Sum/Fall	Natural	7.7	6.0	6.8	7.5	8.8	7.4	6.6	7.6	8.5	Summer: Recent 5 year mean return per spawner. Fall: Returns per spawner mean recent 5 years.
Hoko[e/]	Natural	-	1.1	1.0	1.8	0.6	1.9	1.2	2.7	3.3	Sibling regressions.
North Coast Totals											
Spring/Summer	Natural	2.0	1.3	1.5	1.2	1.4	1.4	1.3	1.4	1.2	
Fall	Natural	20.3	16.1	20.8	22.5	20.3	23.6	17.5	19.7	15.4	
Spring/Summer	Hatchery	1.3	1.7	2.0	1.5	1.4	1.5	2.1	2.0	1.7	
Fall	Hatchery	10.2	8.3	9.0	15.3	6.6	5.6	4.0	11.2	1.5	
Puget Sound summer/fall[c/]											
Nooksack/Samish	Hatchery	18.8	35.3	23.0	30.3	37.5	44.0	46.3	43.9	38.6	Brood release times recent 3 year average return/release rate.
East Sound Bay	Hatchery	0.4	0.8	0.1	2.3	0.4	0.4	1.9	1.2	1.2	Brood release times recent 3 year average return/release rate.
Skagit[d/]	Natural	15.0	23.8	23.4	13.0	14.3	8.3	12.9	18.0	11.8	Regression of post season FRAM abundance scalars and biological/oceanogaphic variables.
	Hatchery	1.1	0.7	0.6	0.9	1.5	1.3	0.3	0.3	0.6	Regression of post season FRAM abundance scalars per release times corresponding BY release for 2015 return.

TABLE I-1. Preseason adult Chinook salmon stock forecasts in thousands of fish. (Page 3 of 4)

Production Source and Stock or Stock Group		2007	2008	2009	2010	2011	2012	2013	2014	2015	Methodology for 2015 Prediction and Source
Stillaguamish[e/]	Natural	1.9	1.1	1.7	1.4	1.8	0.9	1.3	1.6	0.5	Natural plus Hatchery. Natural estimate using a recent four year avg return. Hatchery run estimate using a multiple regression environmental model (EMPAR).
Snohomish[e/]	Natural	12.3	6.5	8.4	9.9	7.4	2.8	3.6	5.3	4.2	Natural run estimate using a multiple regression environmental model (EMPAR).
	Hatchery	8.7	8.8	4.9	5.6	5.2	3.9	6.9	5.4	3.3	Wallace hatchery estimated from recent 4 year returns times hatchery releases.
Tulalip[e/]	Hatchery	8.1	4.1	4.0	3.4	3.5	5.9	10.9	4.7	1.3	Run estimated using a multiple regression environmental model (EMPAR).
South Puget Sound	Natural	17.0	21.1	17.2	12.7	8.9	8.9	5.0	4.8	3.8	Puyallup R. recent five year average return per spawner applied to brood years contributing ages 3-5. For Nisqually, recent 5 year average of runsizes. Green R. 10 year avg return/outmigrant.
	Hatchery	92.1	101.3	93.0	97.4	118.6	95.8	102.0	96.7	62.4	Average return at age multiplied by cohort release for Green, Nisqually, Puyallup, Carr Inlet, and Area 10E.
Hood Canal[d/]	Natural	3.8	2.6	2.5	2.4	2.2	2.9	3.4	3.5	3.1	Natural fish based on the Hood Canal terminal run reconstruction-based relative contribution of the individual Hood Canal management units in the 2012-2014 return years
	Hatchery	43.6	34.2	40.1	42.6	38.4	43.9	65.7	80.6	59	Brood 2011 fingerling lbs released from WDFW facilities in 2012, multiplied by the average of postseason estimated terminal area return rates (total terminal run / hatchery fingerling lbs released three years previous) for the last three return years (2012-2014).
Strait of Juan de Fuca Including Dungeness spring run [d/]	Natural	4.4	3.2	2.4	1.9	2.5	2.9	3.1	3.8	4.9	Natural and hatchery. Dungeness and Elwha hatchery estimated by recent return rates time average releases. Dungeness wild estimated by smolts times average hatchery return rate. Elwha wild estimated using recent 3 year returns from otolith and CWT.

TABLE I-1. Preseason adult Chinook salmon stock forecasts in thousands of fish. (Page 4 of 4)

a/ Does not include the river harvest component. SI forecasts after 2008 include river harvest.
b/ Beginning in 2005, the upriver spring/summer designation was changed, with stream type Snake Basin summer fish being combined with the spring stock.
c/ Unless otherwise noted, forecasts are for Puget Sound run size (4B) available to U.S. net fisheries. Does not include fish caught in troll and recreational fisheries.
d/ Terminal run forecast.
e/ Expected spawning escapement without fishing.

TABLE I-2. Preseason adult coho salmon stock forecasts in thousands of fish. (Page 1 of 2)

Production Source and Stock or Stock Group		2007	2008	2009	2010	2011	2012	2013	2014	2015	Methodology for 2015 Prediction and Source
OPI Area (Total Abundance) (California and Oregon Coasts and Columbia River)		849.2	276.1	1,284.7	556.0	624.5	632.7	716.4	1,213.7	1,015.0	Abundance of all OPI components based on cohort reconstruction including all fishery impacts using Mixed Stock Model (MSM); prior to 2008 only fishery impacts south of Leadbetter Point were used (traditional OPI accounting). OPITT, see Chapter III for details.
OPI Public	Hatchery	593.6	216.1	1,073.1	408.0	375.1	341.7	525.4	983.1	808.4	OPIH: 1969-2013 Columbia River jacks adjusted for delayed smolt releases and total OPI jacks regressed on 1970-2014 adults. Columbia/Coastal proportions based on jacks; Columbia early/late proportions based on jacks; Coastal N/S proportions based on smolts.
Columbia River Early		424.9	110.3	672.7	245.3	216.0	229.8	331.6	526.6	515.2	
Columbia River Late		139.5	86.4	369.7	144.2	146.5	87.4	169.5	437.5	261.8	
Coastal N. of Cape Blanco		7.0	1.7	7.3	4.4	3.6	6.4	5.6	4.8	6.9	
Coastal S. of Cape Blanco		22.2	17.7	23.4	14.1	9.0	18.1	18.7	14.2	24.4	
Lower Columbia River	Natural	21.5	13.4	32.7	15.1	22.7	30.1	46.5	33.1	35.1	Oregon: recent three year cohort average; Washington: natural smolt production multiplied by 2012 brood marine survival rate. Abundance is subset of early/late hatchery abundance above.
Oregon Coast (OCN)	Natural	255.4	60.0	211.6	148.0	249.4	291.0	191.0	230.6	206.6	Rivers: Generalized additive model (GAM) relating ocean recruits to parental spawners and marine environmental variables. See text in Chapter III for details. Lakes: recent three year average return.
STEP	Hatchery	0.2	-	-	-	-	-	-	-	-	No forecast since 2007; releases discontinued.
Washington Coast											
Willapa	Natural	24.4	35.1	33.5	20.4	47.8	81.3	58.6	58.9	42.9	A variety of methods were used for 2015, primarily based on smolt production and survival. See text in Chapter III for details.
	Hatchery	37.2	25.5	59.4	78.7	64.7	88.8	37.1	41.0	57.7	
Grays Harbor	Natural	59.4	42.7	59.2	67.9	89.1	150.2	196.8	108.8	142.6	
	Hatchery	74.0	53.1	63.5	33.3	44.0	47.8	85.2	65.4	46.6	
Quinault	Natural	18.6	17.4	16.3	16.7	22.9	27.3	32.1	25.0	44.2	
	Hatchery	22.7	24.5	26.2	26.6	35.5	35.4	42.0	24.7	24.9	
Queets	Natural	13.6	10.2	31.4	21.8	13.3	37.2	24.5	10.3	7.5	
	Hatchery	19.1	10.3	13.5	11.9	16.3	25.3	19.8	15.7	11.3	
Hoh	Natural	5.4	4.3	9.5	7.6	11.6	14.3	8.6	8.9	5.1	

TABLE I-2. Preseason adult coho salmon stock forecasts in thousands of fish. (Page 2 of 2)

Production Source and Stock or Stock Group		2007	2008	2009	2010	2011	2012	2013	2014	2015	Methodology for 2015 Prediction and Source
Quillayute Fall	Natural	10.8	10.5	19.3	22.0	28.2	33.5	17.2	18.4	10.5	
	Hatchery	18.1	13.0	39.5	17.7	31.0	16.9	12.4	12.6	8.0	
Quillayute Summer	Natural	1.0	1.1	2.2	2.8	2.8	5.7	0.5	2.0	1.2	
	Hatchery	6.4	4.2	12.9	3.2	5.4	4.3	3.3	3.2	2.2	
North Coast Independent Tributaries	Natural	3.2	3.2	11.1	4.2	21.6	15.7	17.8	15.2	11.7	
	Hatchery	4.1	5.0	14.1	5.7	11.8	11.4	6.3	11.6	11.9	
WA Coast Total	Natural	136.4	125.6	177.3	165.3	233.3	362.5	361.8	247.5	265.6	
	Hatchery	181.6	135.7	229.1	177.1	208.7	229.9	206.1	174.2	162.6	
Puget Sound											
Strait of Juan de Fuca	Natural	29.9	24.1	20.5	8.5	12.3	12.6	12.6	12.5	11.1	A variety of methods were used for 2015, primarily based on smolt production and survival. See text in Chapter III and Joint WDFW and tribal annual reports on Puget Sound Coho Salmon Forecast Methodology for details.
	Hatchery	18.4	9.5	7.0	7.8	15.2	18.6	17.6	17.3	11.1	
Nooksack-Samish	Natural	5.2	14.8	7.0	9.6	29.5	25.2	45.4	20.8	28.1	
	Hatchery	53.1	47.1	25.5	36.0	45.7	62.8	49.2	61.7	50.8	
Skagit	Natural	26.8	61.4	33.4	95.9	138.1	48.3	137.2	112.4	121.4	
	Hatchery	8.9	18.3	11.7	9.5	16.7	14.9	16.3	15.8	19.5	
Stillaguamish	Natural	69.2	31.0	13.4	25.9	66.6	47.5	33.1	32.5	31.3	
	Hatchery	0.0	0.1	0.0	5.4	0.6	4.1	3.1	6.0	0.0	
Snohomish	Natural	98.9	92.0	67.0	99.4	180.0	109.0	163.8	150.0	151.5	
	Hatchery	25.7	53.5	53.6	24.5	55.0	45.7	111.5	78.2	53.9	
South Sound	Natural	18.2	27.3	53.6	25.3	98.9	43.1	36.0	62.8	63.0	
	Hatchery	181.7	170.0	188.8	186.4	173.3	162.9	151.0	150.7	180.2	
Hood Canal	Natural	42.4	30.4	48.6	33.2	74.7	73.4	36.8	82.8	61.5	
	Hatchery	54.8	35.0	52.0	51.2	74.9	62.6	68.6	47.6	108.4	
Puget Sound Total	Natural	290.6	281.0	243.5	297.8	600.1	359.1	464.9	473.8	467.9	
	Hatchery	342.6	333.5	338.6	320.8	381.4	371.6	417.3	377.3	423.9	

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CHAPTER II: AFFECTED ENVIRONMENT - CHINOOK SALMON ASSESSMENT

CHINOOK STOCKS SOUTH OF CAPE FALCON

Sacramento River Fall Chinook

The SRFC stock comprises a large proportion of the Chinook spawners returning to Central Valley streams and hatcheries. SRFC are designated as the indicator stock for the Central Valley fall Chinook stock complex, which was established under FMP Amendment 16 to facilitate setting and assessing compliance with ABC and ACLs, as required by the 2006 revision of the MSA. The Sacramento Index (SI) is the aggregate-age index of adult SRFC ocean abundance.

Predictor Description

The SI is the sum of (1) adult SRFC ocean fishery harvest south of Cape Falcon, OR between September 1 and August 31, (2) adult SRFC impacts from non-retention ocean fisheries when they occur, (3) the recreational harvest of adult SRFC in the Sacramento River Basin, and (4) the SRFC adult spawner escapement (Table II-1, Figure II-1).

A new SI forecasting approach was approved at the November 2013 Council meeting for use in 2014 and beyond. This approach uses jack escapement estimates to predict the SI, but uses a wider range of data than the previous method and accounts for autocorrelation in model errors. The accounting for autocorrelated errors is the most substantial change to the SI forecast method used prior to 2014. In practice, this means that if, in the previous year, the modeled SI value was larger than the SI postseason estimate for that year, the SI forecast is adjusted downward to account for that error. Conversely, if the modeled SI value in the previous year was less than the postseason estimate of the SI for that year, the SI forecast would be adjusted upward to compensate for that error.

The forecast of the log-transformed SI was made using the model

$$\log \mathrm{SI}_t = \beta_0 + \beta_1 \log \mathrm{J}_{t-1} + \rho\varepsilon_{t-1},$$

Where $\log \mathrm{SI}_t$ and $\log \mathrm{J}_{t-1}$ are log-transformed SI and jack escapement values, respectively; t is the year for which the SI is being forecast; β_0 is the intercept; β_1 is the slope; ρ is the autocorrelation coefficient; and ε_{t-1} is the difference between the modeled value of the log SI for year t-1 and the postseason estimate of log SI in year t-1. The $\log \mathrm{SI}_t$ is back-transformed to the arithmetic scale and corrected for bias in this transformation,

$$\mathrm{SI}_t = \mathrm{e}^{\log \mathrm{SI}_t + 0.5\sigma^2},$$

where σ^2 is the variance of the normally distributed error component of the fitted model (referred to as the "innovation" variance). A more detailed description of the forecast approach can be found in Appendix E of the 2014 Preseason Report I (PFMC 2014a).

Predictor Performance

The performance of past SI forecasts is displayed graphically in Figure II-4. For 2014, the postseason estimate of the SI was 554,932, which is 87 percent of the preseason forecast of 634,650.

A control rule, adopted as part of Amendment 16 to the salmon FMP, is used annually to specify the maximum allowable exploitation rate on SRFC (Appendix A, Figure A-1). The allowable exploitation

rate is determined by the predicted number of potential spawners in the absence of fisheries, which is defined for SRFC as the forecast SI. The FMP allows for any ocean and river harvest allocation that meets the exploitation rate constraints defined by the control rule. The regulations adopted in 2014 were expected to result in 314,700 hatchery and natural area spawners and an exploitation rate of 50.4 percent. Postseason estimates of these quantities were 211,668 hatchery and natural area adult spawners and an exploitation rate of 61.9 percent (Table II-1).

Stock Forecast and Status

Sacramento Index forecast model parameters were estimated from SI data for years 1983-2014 and jack escapement data for years 1982-2013. A total of 25,359 SRFC jacks were estimated to have escaped to Sacramento River basin hatcheries and natural spawning areas in 2014. This jack escapement, and the following estimated parameters,

$\beta_0 = 7.637828,$
$\beta_1 = 0.554540,$
$\rho = 0.718847,$
$\varepsilon_{t-1} = 0.083934,$
$\sigma^2 = 0.132177$

result in a 2015 SI forecast of 651,985.

Figure II-2 graphically displays the 2015 SI forecast. For 2014, the model fit (line in Figure II-2) was lower than the postseason estimate of the SI. As a result, the 2015 SI forecast value is adjusted upward from the fitted model.

The forecast SI applied to the SRFC control rule (Appendix A, Figure A-1) results in an allowable exploitation rate of 0.70 which produces, in expectation, 195,596 hatchery and natural area adult spawners. Therefore, fisheries impacting SRFC must be crafted to achieve, in expectation, a minimum of 195,596 adult spawners in 2015.

In 2015, invoking *de minimis* fishing rates under Amendment 16 will be unnecessary because SRFC potential spawner abundance is projected to be greater than 162,667 hatchery and natural area adults. Therefore, projected escapement will meet or exceed the S_{MSY} of 122,000 by an exploitation rate greater than 0.25.

OFL, ABC, and ACL

The OFL, ABC, and ACL are defined in terms of spawner escapement (S_{OFL}, S_{ABC}, and S_{ACL}), and are calculated using potential spawner abundance forecasts and established exploitation rates. For SRFC, F_{MSY} = 0.78, the proxy value for Tier-2 Chinook stocks that do not have estimates of this rate derived from a stock-specific spawner-recruit analysis. The OFL for SRFC is S_{OFL} = 651,985 × (1-0.78) = 143,437. Because SRFC is a Tier-2 stock, $F_{ABC} = F_{MSY} \times 0.90 = 0.70$, and $F_{ACL} = F_{ABC}$. The ABC for SRFC is S_{ABC} = 651,985 × (1-0.70) = 195,596, with $S_{ACL} = S_{ABC}$. These preseason estimates will be recalculated with postseason abundance estimates (when available) to assess ACL and OFL compliance.

Sacramento River Winter Chinook

ESA-listed endangered SRWC are harvested incidentally in ocean fisheries, primarily off the central California coast. A two-part consultation standard for endangered SRWC was first implemented in 2012.

The first component of the consultation standard is the season and size limit provisions that have been in place since the 2004 Biological Opinion. These provisions state that the recreational salmon fishery

between Point Arena and Pigeon Point shall open no earlier than the first Saturday in April and close no later than the second Sunday in November. The recreational salmon fishery between Pigeon Point and the U.S.–Mexico Border shall open no earlier than the first Saturday in April and close no later than the first Sunday in October. The minimum size limit shall be at least 20 inches total length. The commercial salmon fishery between Point Arena and the U.S.–Mexico border shall open no earlier than May 1 and close no later than September 30, with the exception of an October fishery conducted Monday through Friday between Point Reyes and Point San Pedro, which shall end no later than October 15. The minimum size limit shall be at least 26 inches total length.

The second component of the consultation standard is specified by a control rule that limits the maximum age-3 impact rate for the area south of Point Arena, California (allowable as a preseason forecast) based on the geometric mean of the most recent three years of spawner escapement (see Appendix A, Figure A-3 for a description of the control rule).

The geometric mean of SRWC escapement for years 2012-2014 is 3,659. Application of the control rule results in a maximum forecast age-3 impact rate of 19.0 percent for 2015 fisheries (Table II-2).

Klamath River Fall Chinook

Predictor Description

For Klamath River fall Chinook, linear regressions are used to relate September 1 ocean abundance estimates of age-3, age-4, and age-5 fish to that year's river run size estimates of age-2, age-3, and age-4 fish, respectively (Table II-3). Historical abundance estimates were derived from a cohort analysis of CWT information (brood years 1979-2010). The y-intercept of the regressions is constrained to zero, which gives the biologically reasonable expectation that a river run size of zero predicts an ocean abundance remainder of zero for the same cohort. The abundance of age-2 fish is not forecasted because no precursor to age-2 fish of that brood is available. Ocean fisheries harvest nominal numbers of age-2 KRFC.

Predictor Performance

Since 1985, the preseason ocean abundance forecasts for age-3 fish have ranged from 0.33 to 2.72 times the postseason estimates; for age-4 fish from 0.38 to 2.60 times the postseason estimates; and for the adult stock as a whole from 0.34 to 2.03 times the postseason estimates (Table II-4). The September 1, 2013 age-3 forecast (219,800) was 0.84 times its postseason estimate (261,878). The age-4 forecast (67,400) was 0.38 times its postseason estimate (178,533); and the age-5 forecast (12,100) was 1.60 times its postseason estimate (7,571). The preseason forecast of the adult stock as a whole was 0.67 times the postseason estimate.

Management of KRFC harvest since 1986 has attempted to achieve specific harvest rates on fully-vulnerable age-4 and age-5 fish in ocean and river fisheries (Table II-5). The Council has used a combination of quotas and time/area restrictions in ocean fisheries in an attempt to meet the harvest rate objective set each year. Since 1992, fisheries have been managed to achieve 50/50 allocation between tribal and non-tribal fisheries. Tribal and recreational river fisheries have been managed on the basis of adult Chinook quotas.

A control rule, adopted as part of Amendment 16 to the salmon FMP, is used annually to specify the maximum allowable exploitation rate on KRFC (Appendix A, Figure A-2). The allowable exploitation rate is determined by the predicted number of potential spawners, which is defined as the natural area adult escapement expected in the absence of fisheries. The FMP allows for any ocean and river harvest allocation that meets the exploitation rate constraints defined by the control rule. The regulations adopted

in 2014 were expected to result in 40,700 natural-area spawning adults and an age-4 ocean harvest rate of 16.0 percent. Postseason estimates of these quantities were 95,300 natural-area adult spawners and an age-4 ocean harvest rate of 17.0 percent (Table II-5 and Table II-6).

Stock Forecast and Status

The 2015 forecast for the ocean abundance of KRFC as of September 1, 2014 (preseason) is 342,200 age-3 fish, 71,100 age-4 fish, and 10,400 age-5 fish.

Late-season ocean fisheries in 2014 (September through November) were estimated to have harvested 320 adult KRFC, including 126 age-4 (0.2 percent age-4 ocean harvest rate), which will be deducted from the ocean fishery's allocation in determining the 2015 allowable ocean harvest.

The forecast of potential spawner abundance is derived from the ocean abundance forecasts, ocean natural mortality rates, age-specific maturation rates, stray rates, and the proportion of escapement expected to spawn in natural areas. The 2015 KRFC potential spawner abundance forecast is 99,102 natural-area adults. This potential spawner abundance forecast applied to the KRFC control rule results in an allowable exploitation rate of 0.59 which produces, in expectation, 40,700 natural-area adult spawners. Therefore, fisheries impacting KRFC must be crafted to achieve, in expectation, a minimum of 40,700 natural-area adult spawners in 2015.

In 2015, invoking *de minimis* fishing rates under Amendment 16 will be unnecessary because KRFC potential spawner abundance is projected to be greater than 54,267 natural-area adults.

OFL, ABC, and ACL

The OFL, ABC, and ACL are defined in terms of spawner escapement (S_{OFL}, S_{ABC}, and S_{ACL}), and are calculated using potential spawner abundance forecasts and established exploitation rates. For KRFC, $F_{MSY} = 0.71$, the value estimated from a stock-specific spawner-recruit analysis (STT 2005). The OFL for KRFC is $S_{OFL} = 99{,}102 \times (1\text{-}0.71) = 28{,}739$. Because KFRC is a Tier-1 stock, $F_{ABC} = F_{MSY} \times 0.95 = 0.68$, and $F_{ACL} = F_{ABC}$. The ABC for KRFC is $S_{ABC} = 99{,}102 \times (1\text{-}0.68) = 31{,}713$, with $S_{ACL} = S_{ABC}$. These preseason estimates will be recalculated with postseason abundance estimates (when available) to assess ACL and OFL compliance.

Other California Coastal Chinook Stocks

Other California coastal streams that support fall Chinook stocks which contribute to ocean fisheries off Oregon and California, include the Smith, Little, Mad, Eel, and Mattole rivers, and Redwood Creek. Except for the Smith River, these stocks are included in the California coastal Chinook ESU, which is listed as threatened under the ESA. Current information is insufficient to forecast the ocean abundance of these stocks, however, the NMFS ESA consultation standard restricts the KRFC age-4 ocean harvest rate to no more than 16.0 percent to limit impacts on these stocks. In 2014 the age-4 ocean harvest rate was estimated to be 17.0 percent. The Klamath River spring, Smith River, Rogue River, Umpqua River, and other Oregon Chinook stocks south of the Elk River are components of the Southern Oregon/Northern California (SONC) Chinook complex, and as such, specification of ACLs is deferred to KRFC, the indicator stock for the SONC complex.

Oregon Coast Chinook Stocks

Oregon coast Chinook stocks are categorized into three major subgroups based on ocean migration patterns: the North Oregon Coast (NOC) Chinook aggregate, the Mid Oregon Coast (MOC) Chinook aggregate, and the South Oregon Coast (SOC) Chinook aggregate. Although their ocean harvest distributions overlap somewhat, they have been labeled as far-north, north, or south/local migrating, respectively.

Far-North and North Migrating Chinook (NOC and MOC groups)

Far-north and north migrating Chinook stocks include spring and fall stocks north of and including the Elk River, with the exception of Umpqua River spring Chinook. Based on CWT analysis, the populations from ten major NOC river systems from the Nehalem through the Siuslaw Rivers are harvested primarily in ocean fisheries off British Columbia and Southeast Alaska, and to a much lesser degree in Council area and terminal area (state waters) fisheries off Washington and Oregon. CWT analysis indicates populations from five major MOC systems, from the Coos through the Elk Rivers, are harvested primarily in ocean fisheries off British Columbia, Washington, Oregon, and in terminal area fisheries. Minor catches occur in California fisheries, and variable catches have been observed in southeast Alaska troll fisheries.

NOC and MOC Chinook stocks are components of the Far-North-Migrating Coastal (FNMC) Chinook complex, which is an exception to the ACL requirements of the MSA because they are managed under an international agreement (the PST); therefore, specification of ACLs is not necessary for stocks in the FNMC complex.

Predictor Description

Quantitative abundance predictions are made for all three of the coastal Chinook groups (NOC, MOC, and SOC), but are not used in annual development of Council area fishery regulations. Quantitative forecasts of abundance are based on sibling regression analyses from individual basins' escapement assessment data and scale sampling, which occurs coast-wide. Forecast data for the NOC are used in the PSC management process in addition to terminal area management actions.

Natural spawner escapement is assessed yearly from the Nehalem through Sixes rivers. Peak spawning counts of adults are obtained from standard index areas on these rivers and monitored to assess stock trends (PFMC 2015, Chapter II, Table II-5 and Figure II-3). Natural fall Chinook stocks from both the NOC and MOC dominate production from this subgroup. Also present in lesser numbers are naturally-produced spring Chinook stocks from several rivers, and hatchery fall and/or spring Chinook released in the Trask, Nestucca, Salmon, Alsea, and Elk rivers.

Basin-specific forecasts constitute the overall aggregate forecasts and are derived in conjunction with annual PSC Chinook model input and calibration activities; however, they were not available at publication time.

Predictor Performance

There was no information available to evaluate performance of predictors for NOC and MOC stocks.

Stock Forecast and Status

North Oregon Coast

Since 1977, the Salmon River Hatchery production has been tagged for use primarily as a PSC indicator stock for the NOC stock component. Because these fish are primarily harvested in fisheries north of the Council management area, the STT has not reviewed the procedure by which this indicator stock is used in estimating annual stock status. The annual spawner counts had been gradually increasing since 2007. The 2014 spawner counts were a 15 percent decrease from 2013 (PFMC 2015, Appendix B, Table B-11).

Based on the density index of total spawners, the generalized expectation for NOC stocks in 2015 is above recent years' average abundance. Specifically, the 2014 spawner density in standard survey areas for the NOC averaged 155 spawners per mile, the second highest since 2004.

Mid Oregon Coast

Since 1977, the Elk River Hatchery production has been tagged for potential use as a PSC indicator stock for the MOC stock aggregate. Age-specific ocean abundance forecasts for 2015 are not currently available, but are being developed. The STT has not undertaken a review of the methods used by Oregon Department of Fish and Wildlife (ODFW) staff in developing these abundance forecasts.

The 2014 MOC density from standard survey areas averaged 184 adult spawners per mile, above recent years' average abundance (PFMC 2015, Appendix B, Table B-11). Fall Chinook escapement goals are currently under development for the South Umpqua and Coquille basins of the MOC.

South/Local Migrating Chinook (SOC group)

South/local migrating Chinook stocks include Rogue River spring and fall Chinook, fall Chinook from smaller rivers south of the Elk River, and Umpqua River spring Chinook. These stocks are important contributors to ocean fisheries off Oregon and northern California. Umpqua River spring Chinook contribute to a lesser degree to fisheries off Washington, British Columbia, and southeast Alaska.

SOC stocks are components of the Southern Oregon/Northern California (SONC) Chinook complex, and as such, specification of ACLs is deferred to KRFC, the indicator stock for the SONC complex.

Rogue River Fall Chinook

Rogue River fall Chinook contribute to ocean fisheries principally as age-3 through age-5 fish. Mature fish enter the river each year from mid-July through October, with the peak of the run occurring during August and September.

Predictor Description

Carcass recoveries in Rogue River index surveys covering a large proportion of the total spawning area were available for 1977-2004. Using Klamath Ocean Harvest Model (KOHM) methodology, these carcass numbers, allocated into age-classes from scale data, were used to estimate the Rogue Ocean Population Index (ROPI) for age-3 to age-5 fish. A linear regression was developed using the escapement estimates (all ages) in year *t* based on seining at Huntley Park (1976-2004) to predict the ROPI in year *t*+1 (1977-2005).

Beginning in 2015, a revised predictor was used which relies on the Huntley Park escapement estimate and dispenses with the use of the carcass counts. Linear regressions are used to relate May 1 ocean abundance estimates of age-3, age-4, age-5, and age-6 Rogue fall Chinook to the previous year's river run size estimates of age-2, age-3, age-4, and age-5 fish, respectively. Historical May 1 ocean abundance estimates were derived from a cohort analysis of 1988-2006 brood years. May 1 (t) ocean abundances were converted to September 1 (t-1) forecasts by dividing the May (t) number by the assumed September 1 (t-1) through May 1 (t) survival rate of 0.5 age-3, 0.8 age-4, 0.8 age-5, and 0.8 age-6. River run size estimates are derived from a flow based expansion of standardized seine catches of fall Chinook at Huntley Park (RM 8). The y-intercept of the regressions is constrained to zero.

The 2014 Huntley Park escapement estimate and the resulting 2015 ROPI forecast of 222,800 consists of age-3 (151,500), age-4 (48,500) and age-5-6 (22,800) fish.

Predictor Performance

The ROPI is based on cohort reconstruction methods with index values predicted from regression equations. Because postseason estimates of the ROPI are not available, it is not possible to assess predictor performance.

Stock Forecast and Status

The 2015 ROPI is below recent years' average (Table II-7).

Other SOC Stocks

Umpqua and Rogue spring Chinook contribute to ocean fisheries primarily as age-3 fish. Mature Chinook enter the rivers primarily during April and May and generally prior to annual ocean fisheries. Quantitative abundance predictions are not made for these stocks.

Natural fall Chinook stocks from river systems south of the Elk River and spring Chinook stocks from the Rogue and Umpqua rivers dominate production from this subgroup. Substantial releases of hatchery spring Chinook occur in both the Rogue and Umpqua rivers, although also present in lesser numbers are hatchery fall Chinook, primarily from the Chetco River.

Fall Chinook escapement goals and forecasts are currently under development for stocks south of the Elk River. These stocks are minor contributors to general season mixed-stock ocean fisheries. Standard fall Chinook spawning index escapement data were available for the smaller SOC rivers (Winchuck, Chetco, and Pistol rivers). The 2014 average density from standard survey areas was 32 adult spawners per mile (PFMC 2015, Appendix B, Table B-8).

Quantitative abundance predictions are not made for these stocks, although general trends in stock abundance for SOC Chinook stocks are assessed through escapement indices (PFMC 2015, Chapter II, Table II-5 and Figure II-3).

CHINOOK STOCKS NORTH OF CAPE FALCON

Columbia River Chinook

Columbia River fall Chinook stocks form the largest contributing stock group to Council Chinook fisheries north of Cape Falcon. Abundance of these stocks is a major factor in determining impacts of fisheries on weak natural stocks critical to Council area management, particularly ESA-listed Lower Columbia River (LCR) natural tule Chinook. Abundance predictions are made for five major fall stock units characterized as being hatchery or natural production, and originating above or below Bonneville Dam. The upriver brights (URB) and lower river wild (LRW) are primarily naturally-produced stocks, although the upriver brights do have a substantial hatchery component. The lower river hatchery (LRH) tule, Spring Creek Hatchery (SCH) tule, and mid-Columbia brights (MCB) are primarily hatchery-produced stocks. The MCB include the lower river bright (LRB) stock as a small naturally-produced component. LRB spawn in the mainstem Columbia River near Beacon Rock and are believed to have originated from MCB hatchery strays. The tule stocks generally mature at an earlier age than the bright fall stocks and do not migrate as far north. Minor fall stocks include the Select Area brights (SAB), a stock originally from the Rogue River.

Columbia Upper River summer Chinook also contribute to Council area fisheries, although like URB and LRW, most ocean impacts occur in British Columbia (B.C.) and Southeast Alaska (SEAK) fisheries. Columbia River summer Chinook have both natural and hatchery components, and originate in areas upstream from Rock Island Dam.

URB and Columbia summer Chinook are exceptions to the ACL requirements of the MSA because they are managed under an international agreement (the PST); therefore, specification of ACLs is not necessary for URB and Columbia summer Chinook. ESA consultation standards serve the purpose of ACLs for ESA-listed stocks like LRW Chinook, and are deferred to ESA consultation standards. Broodstock goals serve the purpose of ACLs for hatchery-origin stocks like LRH, SCH, and MCB.

Predictor Description

Preseason forecasts of Columbia River fall and summer Chinook stock abundance, used by the STT to assess the Council's adopted fishery regulations, are based on age-specific and stock-specific forecasts of annual ocean escapement (return to the Columbia River). These forecasts are developed by WDFW and a subgroup of the *U.S. v Oregon* Technical Advisory Committee (TAC). Columbia River return forecast methodologies used for Council management are identical to those used for planning Columbia River fall season fisheries, although minor updates to Council estimates of inriver run size may occur prior to finalization of the inriver fishery plans, based on the results of planned ocean fisheries.

The 2015 return of summer and each fall Chinook stock group is forecasted using relationships between successive age groups within a cohort. The database for these relationships was constructed by combining age-specific estimates of escapement and inriver fishery catches for years since 1964 (except for MCB, which started in the 1980s). Typically, only the more recent broods are used in the current predictions. Fall Chinook stock identification in the Columbia River mixed-stock fisheries is determined by sampling catch and escapement for CWTs and visual stock identification (VSI). Age composition estimates are based on CWT data and scale reading of fishery and escapement samples, where available. These stock and age data for Columbia River fall Chinook are the basis for the return data presented in the *Review of 2014 Ocean Salmon Fisheries* (Appendix B, Tables B-15 through B-20). The 2014 returns for summer Chinook and the five fall Chinook stocks listed in this report may differ somewhat from those provided in the *Review of 2014 Ocean Salmon Fisheries*, since ocean escapement estimates may have been updated after that report was printed.

Summer and fall Chinook ocean escapement forecasts developed for the March Council meeting do not take into account variations in marine harvest. The STT combines the initial inriver run size (ocean escapement; Table II-8) with expected Council area fishery harvest levels and stock distribution patterns to produce adjusted ocean escapement forecasts based on the proposed ocean fishing regulations. These revised forecasts are available at the end of the Council preseason planning process in April and are used for preseason fishery modeling in the Columbia River.

Predictor Performance

Performance of the preliminary inriver run size estimation methodology can be assessed, in part, by examining the differences between preseason forecasts and postseason estimates (Table II-8; Figure II-4). The recent 10-year average March preliminary preseason forecasts as a percentage of the postseason estimates for the URB, LRW, LRH, SCH, and MCB are 114, 109, 113, 121, and 114 percent respectively. None of the fall Chinook stocks had a notable bias in the recent time series of March preliminary forecasts. The recent 5-year average March preliminary preseason forecasts as a percentage of the postseason estimates for summer Chinook is 117 percent with a bias toward over-forecasting.

Stock Forecasts and Status

The preliminary forecast for 2015 URB fall Chinook ocean escapement is 500,300 adults, about 73 percent of last year's return of 684,200 and about 146 percent of the recent 10-year average of 343,600. This forecast is about half of the record high forecast in 2014. This ocean escapement will allow for significant ocean and in-river fisheries and will easily achieve the FMP S_{MSY} conservation objective of 39,625 natural area spawners in the Hanford Reach, Yakima River, and areas above Priest Rapids Dam.

The forecast for 2015 ocean escapement of ESA-listed Snake River wild fall Chinook is approximately 20,900 which is about a third of the forecast of 64,600 in 2014.

Ocean escapement of LRW fall Chinook in 2015 is forecast at 18,900 adults, about 130 percent of the recent 10-year average return of 14,500. The forecast is about 73 percent of last year's actual return. The spawning escapement goal of 5,700 in the North Fork Lewis River should be achieved this year.

The preliminary forecast for 2015 ocean escapement of LRH fall Chinook is for a return of 94,900 adults, about 93 percent of last year's return and 117 percent of the recent 10-year average of 80,800. Based on this abundance forecast, the total allowable LCR natural tule exploitation rate for 2015 fisheries is no greater than 41.0 percent under the matrix developed by the Tule Chinook Workgroup in 2011, which is used by NMFS in developing ESA guidance for this stock (Appendix A Table A-6). This is the highest exploitation rate allowed under the recommended matrix.

The preliminary ocean escapement forecast of SCH fall Chinook in 2015 is 160,500 adults, about 126 percent of last year's return and 215 percent of the 10-year average of 74,800. The 2015 forecast is the second highest forecast since 1991.

The preliminary forecast for the 2015 ocean escapement of MCB fall Chinook is 113,300 adults, about 56 percent of last year's return and about 109 percent of the recent 10-year average of 104,400.

The preliminary forecast for summer Chinook in 2015 is 73,000 adults, approximately 93 percent of last year's return and about 102 percent of the recent 5-year average of 71,400. This ocean escapement should allow opportunity for both ocean and in-river fisheries and will easily exceed the FMP S_{MSY} conservation objective of 12,143 escapement above Rock Island Dam.

Washington Coast Chinook

Washington Coast Chinook consist of spring, summer, and fall stocks from Willapa Bay through the Hoko River. Based on limited CWT analysis, these populations are harvested primarily in ocean fisheries off British Columbia and Southeast Alaska, and to a lesser degree in Council-area fisheries off Washington and Oregon.

Washington Coast Chinook stocks are components of the FNMC Chinook complex, which is an exception to the ACL requirements of the MSA because it is managed under an international agreement (the PST); therefore, specification of ACLs is not necessary for stocks in the FNMC complex.

Predictor Description and Past Performance

Council fisheries have negligible impacts on Washington coast Chinook stocks and information to assess past performance is unavailable. However, abundance estimates are provided for Washington Coastal fall stocks in subsequent preseason fishery impact assessment reports prepared by the STT (e.g., Preseason Report III).

Stock Forecasts and Status

The 2015 Willapa Bay hatchery and natural fall Chinook ocean escapement forecasts were unavailable at time of printing.

The 2015 Queets River natural fall Chinook forecast is for an ocean escapement of 3,168, which is lower than the 2014 forecast of 3,576. The ocean escapement is greater than the 2,500 FMP S_{MSY} conservation objective, which should allow limited flexibility in structuring 2015 ocean and river fisheries. The 2015 Queets River hatchery fall Chinook forecast is for an ocean escapement of 876, which is similar to the 2014 forecast of 878.

For the Hoh River, the 2015 natural spring/summer Chinook spawning escapement is 821, below the FMP conservation objective of 900. The natural fall Chinook forecast is 2,616 which is above the FMP S_{MSY} conservation objective of 1,200.

The 2015 Quillayute hatchery spring Chinook ocean escapement forecast is 1,664 and the natural summer/fall Chinook forecast is 8,465 (859 summer and 7,606 fall). The FMP S_{MSY} conservation objectives are spawning escapements of 1,200 summer Chinook and 3,000 fall Chinook.

Puget Sound Chinook

Puget Sound Chinook stocks include all fall, summer, and spring stocks originating from U.S. tributaries in Puget Sound and the eastern Strait of Juan de Fuca (east of Salt Creek, inclusive). Puget Sound Chinook consists of numerous natural Chinook stocks of small to medium-sized populations and substantial hatchery production. The Puget Sound ESU was listed under the ESA as threatened in March 1999.

Southern U.S. fisheries that impact Puget Sound Chinook are constrained by terms of a Resource Management Plan (RMP), and are exempted from ESA Section 9 take prohibitions under Limit 6 of the 4(d) rule. Puget Sound stocks contribute to fisheries off B.C., are present to a lesser degree off SEAK, and are impacted to a minor degree by Council-area ocean fisheries. Because Council-area fishery impacts to Puget Sound Chinook stocks are negligible, ocean regulations are not generally used to manage these stocks.

Predictor Description

Methodologies for estimates are described in the annual Puget Sound management reports (starting in 1993, reports are available by Puget Sound management unit, not by individual species). Forecasts for Puget Sound stocks generally assume production is dominated by age-4 adults. The STT has not undertaken a review of the methods employed by state and tribal staffs in preparing these abundance forecasts. Run-size expectations for various Puget Sound stock management units are listed in Table I-1.

Predictor Performance

There was no information available to evaluate performance of predictors for Puget Sound Chinook stocks.

Stock Forecasts and Status

ACLs are undefined in the FMP for ESA-listed stocks like Puget Sound Chinook, and are deferred to ESA consultation standards.

Spring Chinook

Spring Chinook originating in Puget Sound are expected to remain depressed. Runs in the Nooksack and Dungeness rivers are of particular concern.

Summer/Fall Chinook

The 2015 preliminary forecast for Puget Sound summer/fall stocks is for a return of 194,700 Chinook, a decrease from the 2014 preseason forecast of 269,800. The 2015 natural Chinook return forecast of 28,300 (includes supplemental category forecasts) is lower than the 2014 forecast of 37,000.

Since ESA listing and development of the RMP, fishery management for Puget Sound Chinook has changed from an escapement goal basis to the use of stock-specific exploitation rates and "critical abundance thresholds." This new approach is evaluated on an annual basis through the RMP.

STOCK STATUS DETERMINATION UPDATES

No Chinook stocks were subject to overfishing or were classified as overfished in 2014. No stocks met the criteria for approaching an overfished condition in 2015 (Table V-4).

SELECTIVE FISHERY CONSIDERATIONS FOR CHINOOK

As the North of Falcon region has moved forward with mass marking of hatchery Chinook salmon stocks, the first mark selective fishery for Chinook salmon in Council waters was implemented in June 2010 in the recreational fishery north of Cape Falcon. In 2011 and 2012, the mark selective fishery in June was 8 and 15 days, respectively. In 2013 and 2014, the North of Falcon mark selective recreational fishery started in mid-May in Neah Bay and La Push subareas, then opened in all areas in late May or June. In 2014, the mark selective Chinook quota was 9,000 fish. Selective fishing options for non-Indian fisheries are likely to be under consideration again in the ocean area from Cape Falcon, Oregon to the U.S./Canada border. Observed mark rates on Chinook in 2014 ocean fisheries in this area ranged from 70 to 86 percent. Based on preseason abundance forecasts, the expected mark rate for Chinook in this area for 2015 should be similar to those observed in 2014.

TABLE II-1. Harvest and abundance indices for adult Sacramento River fall Chinook in thousands of fish. (Page 1 of 2)

	SRFC Ocean Harvest South of Cape Falcon[a/]				River	Spawning Escapement			Sacramento	Exploitation
Year	Troll	Sport	Non-Ret[b/]	Total	Harvest	Natural	Hatchery	Total	Index (SI)[c/]	Rate (%)[d/]
1983	248.1	86.5	0.0	334.6	18.0	91.4	18.8	110.2	462.9	76
1984	266.8	87.1	0.0	353.9	25.9	119.5	39.5	159.0	538.8	70
1985	359.0	159.3	0.0	518.4	39.1	209.5	29.9	239.3	796.7	70
1986	620.1	137.5	0.0	757.6	39.2	216.3	23.8	240.1	1,036.9	77
1987	686.6	173.8	0.0	860.4	31.8	174.8	20.3	195.1	1,087.3	82
1988	1,163.0	188.3	0.0	1,351.3	37.1	198.0	29.5	227.5	1,615.9	86
1989	605.9	158.9	0.0	764.8	24.9	126.7	25.9	152.6	942.3	84
1990	507.5	150.8	0.0	658.3	17.2	83.2	21.9	105.1	780.5	87
1991	301.0	90.7	0.0	391.7	26.0 [e/]	91.4	27.5	118.9	536.6	78
1992	233.3	70.2	0.0	303.5	13.3 [e/]	59.5	22.1	81.5	398.3	80
1993	342.8	115.5	0.0	458.3	27.7 [e/]	110.6	26.8	137.4	623.4	78
1994	303.3	164.8	0.0	468.1	28.9 [e/]	133.0	32.6	165.6	662.5	75
1995	730.4	387.9	0.0	1,118.3	48.2	253.5	41.8	295.3	1,461.8	80
1996	426.8	157.0	0.0	583.8	49.2	267.1	34.6	301.6	934.6	68
1997	579.7	210.3	0.0	790.0	56.3	279.6	65.2	344.8	1,191.2	71
1998	292.8	113.9	0.0	406.7	69.8 [e/]	168.1	77.8	245.9	722.5	66
1999	308.1	76.7	0.0	384.8	68.9 [e/]	353.7	46.1	399.8	853.5	53
2000	432.7	153.2	0.0	585.8	59.5 [e/]	369.2	48.3	417.5	1,062.8	61
2001	285.2	94.3	0.0	379.5	97.4	537.4	59.4	596.8	1,073.7	44
2002	454.2	185.2	0.0	639.4	89.2 [e/]	682.7	87.2	769.9	1,498.5	49
2003	506.6	106.9	0.0	613.5	85.4	413.4	109.6	523.0	1,221.8	57
2004	622.1	213.0	0.0	835.1	46.8	203.5	83.4	286.9	1,168.8	75
2005	370.3	127.7	0.0	498.0	64.6	210.7	185.3	396.0	958.7	59
2006	149.9	107.8	0.0	257.7	44.9	195.1	79.9	275.0	577.6	52

TABLE II-1. Harvest and abundance indices for adult Sacramento River fall Chinook (SRFC) in thousands of fish. (Page 2 of 2)

	SRFC Ocean Harvest South of Cape Falcon[a/]				River	Spawning Escapement			Sacramento	Exploitation
Year	Troll	Sport	Non-Ret[b/]	Total	Harvest	Natural	Hatchery	Total	Index (SI)[c/]	Rate (%)[d/]
2007	120.0	32.1	0.0	152.1	14.3 [e/]	70.0	21.4	91.4	257.8	65
2008	3.2	0.9	0.0	4.1	0.1 [e/]	46.9	18.5	65.4	69.6	6
2009	0.0	0.2	0.1	0.3	0.0 [e/]	23.3	17.5	40.9	41.1	1
2010	11.8	11.4	0.3	23.5	2.5 [e/]	84.6	39.7	124.3	150.3	17
2011	46.7	22.9	0.0	69.6	17.4 [e/]	76.5	42.9	119.3	206.3	42
2012	183.9	93.4	0.3	277.6	62.2 [e/]	163.2	122.3	285.4	625.2	54
2013	292.4	114.4	0.0	406.8	55.5 [e/]	301.5	104.7	406.2	868.5	53
2014[f/]	243.5	63.6	0.0	307.1	36.2 [e/]	167.1	44.6	211.7	554.9	62

a/ Ocean harvest for the period September 1 (t-1) through August 31 (t).

b/ Mortalities estimated from non-retention ocean fisheries (e.g., coho-only fisheries, non-retention GSI sampling). In 2008, there were 37 estimated mortalities as a result of non-retention fisheries that have been rounded to 0 in this table.

c/ The SI is the sum of (1) SRFC ocean fishery harvest south of Cape Falcon between September 1 and August 31, (2) SRFC impacts from non-retention ocean fisheries when they occur, (3) the recreational harvest of SRFC in the Sacramento River Basin, and (4) the SRFC spawner escapement.

d/ Total ocean harvest, non-retention ocean fishery mortalities, and river harvest of SRFC as a percentage of the SI.

e/ Estimates derived from CDFW Sacramento River Basin angler survey. Estimates not marked with a footnote are inferred from escapement data and the mean river harvest rate estimate.

f/ Preliminary.

TABLE II-2. Sacramento River winter Chinook escapement, allowable age-3 impact rates, and management performance.

			Age-3 impact rate south of Point Arena, CA		
Year	Escapement[a/]	3-yr GM Escapement[b/]	Maximum Allowable (%)	Preseason Forecast (%)	Postseason Estimate (%)
2000	--	--	-	-	21.4
2001	8,224	--	-	-	22.9
2002	7,464	--	-	-	21.8
2003	8,218	--	-	-	10.3
2004	7,869	7,960	-	-	24.8
2005	15,839	7,844	-	-	17.2
2006	17,149	10,080	-	-	15.1
2007	2,533	12,881	-	-	17.8
2008	2,725	8,828	-	-	0.0
2009	4,416	4,910	-	-	0.0
2010	1,596	3,124	-	-	- [c/]
2011	824	2,678	-	-	28.3
2012	2,671	1,797	13.7	13.7	13.2
2013	6,085	1,520	12.9	12.9	18.3 [d/]
2014	3,015	2,375	15.4	15.4	NA [e/]
2015	NA	3,659	19.0	NA	NA

a/ Escapement includes jacks and adults spawning in natural areas and fish used for broodstock at Livingston Stone National Fish Hatchery.
b/ Geometric mean of escapement for the three prior years (e.g., 2014 GM computed from 2011-2013 escapement).
c/ Insufficient data for postseason estimate.
d/ Preliminary: incomplete cohort data (age-4 escapement unavailable).
e/ Incomplete cohort data (age-3 and age-4 escapement unavailable).

TABLE II-3. Klamath River fall Chinook ocean abundance (thousands), harvest rate, and river run size estimates (thousands) by age.

	Ocean Abundance Sept. 1 (t-1)			Annual Ocean Harvest Rate Sept. 1 (t-1) - Aug. 31 (t)		Klamath Basin River Run (t)				
Year (t)	Age-3	Age-4	Total	Age-3	Age-4	Age-2	Age-3	Age-4	Age-5	Total Adults
1981	493.2	57.0	550.2	0.21	0.53	28.2	64.1	14.4	1.8	80.3
1982	561.1	133.4	694.5	0.30	0.52	39.4	30.1	33.9	2.6	66.6
1983	313.3	114.2	427.5	0.19	0.60	3.8	35.9	20.7	0.9	57.5
1984	157.3	82.8	240.1	0.08	0.38	8.3	21.7	24.4	1.1	47.2
1985	374.8	56.9	431.7	0.11	0.24	69.4	32.9	25.7	5.8	64.4
1986	1,304.4	140.8	1,445.2	0.18	0.46	44.6	162.9	29.8	2.3	195.0
1987	781.1	341.9	1,123.0	0.16	0.43	19.1	89.7	112.6	6.8	209.1
1988	756.3	234.8	991.0	0.20	0.39	24.1	101.2	86.5	3.9	191.6
1989	369.8	177.2	547.1	0.15	0.36	9.1	50.4	69.6	4.3	124.3
1990	176.1	104.0	280.1	0.30	0.55	4.4	11.6	22.9	1.3	35.9
1991	69.4	37.2	106.6	0.03	0.18	1.8	10.0	21.6	1.1	32.7
1992	39.5	28.2	67.7	0.02	0.07	13.7	6.9	18.8	1.0	26.7
1993	168.5	15.0	183.5	0.05	0.16	7.6	48.3	8.2	0.7	57.2
1994	119.9	41.7	161.6	0.03	0.09	14.4	37.0	26.0	1.0	64.0
1995	784.3	28.7	813.0	0.04	0.14	22.8	201.9	18.3	2.6	222.8
1996	192.3	225.5	417.8	0.05	0.16	9.5	38.8	136.7	0.3	175.8
1997	140.2	62.8	203.0	0.01	0.06	8.0	35.0	44.2	4.6	83.7
1998	154.8	44.7	199.5	0.00	0.09	4.6	59.2	29.7	1.7	90.6
1999	129.1	30.5	159.5	0.02	0.09	19.2	29.2	20.5	1.3	51.0
2000	617.1	44.2	661.3	0.06	0.10	10.2	187.1	30.5	0.5	218.1
2001	356.1	133.8	489.9	0.03	0.09	11.3	99.1	88.2	0.2	187.4
2002	513.4	98.9	612.4	0.02	0.15	9.2	94.6	62.5	3.7	160.8
2003	399.4	192.1	591.5	0.08	0.21	3.8	94.3	96.8	0.9	191.9
2004	159.4	104.6	264.1	0.12	0.34	9.6	33.1	40.5	5.3	78.9
2005	190.0	38.1	228.1	0.02	0.20	2.3	43.8	17.5	3.9	65.2
2006	90.6	63.4	154.0	0.01	0.10	26.9	18.5	41.6	1.3	61.4
2007	376.8	33.6	410.5	0.06	0.21	1.7	113.7	16.8	1.6	132.1
2008	68.0	81.4	149.4	0.00	0.10	25.2	18.6	50.2	1.7	70.6
2009	240.7	21.1	261.8	0.00	0.00	11.9	78.6	16.4	5.6	100.6
2010	192.8	62.1	254.9	0.01	0.04	16.6	46.1	44.3	0.4	90.9
2011	240.2	64.6	304.8	0.03	0.08	84.9	59.0	41.0	2.0	102.0
2012	799.8	74.3	874.1	0.03	0.08	21.4	243.9	49.3	2.1	295.3
2013	434.0[a/]	194.6	628.6	0.04[a/]	0.20	14.4	55.2	108.8	1.1	165.0
2014	261.9[b/]	178.5[a/]	440.4	NA[c/]	0.17[a/]	22.3	57.8	98.7	3.9	160.4

a/ Preliminary: incomplete cohort data (age-5 unavailable).

b/ Preliminary: incomplete cohort data (age-4 and age-5 unavailable).

c/ Not estimated: incomplete cohort data (age-4 and age-5 unavailable).

TABLE II-4. Comparisons of preseason forecast and postseason estimates for ocean abundance of adult Klamath River fall Chinook. (Page 1 of 4)

Year (t)	Preseason Forecast[a/] Sept. 1 (t-1)	Postseason Estimate Sept. 1 (t-1)	Pre/Postseason
		Age-3	
1985	113,000	276,000	0.41
1986	426,000[b/]	1,304,409	0.33
1987	511,800	781,123	0.66
1988	370,800	756,261	0.49
1989	450,600	369,828	1.22
1990	479,000	176,122	2.72
1991	176,200	69,424	2.54
1992	50,000	39,502	1.27
1993	294,400	168,473	1.75
1994	138,000	119,913	1.15
1995	269,000	784,260	0.34
1996	479,800	192,272	2.50
1997	224,600	140,153	1.60
1998	176,000	154,799	1.14
1999	84,800	129,066	0.66
2000	349,600	617,098	0.57
2001	187,200	356,128	0.53
2002	209,000	513,435	0.41
2003	171,300	399,414	0.43
2004	72,100	159,447	0.45
2005	185,700	189,976	0.98
2006	44,100	90,606	0.49
2007	515,400	376,840	1.37
2008	31,600	68,003	0.46
2009	474,900	240,713	1.97
2010	223,400	192,764	1.16
2011	304,600	240,222	1.27
2012	1,567,600	799,815	1.96
2013	390,700	433,989	0.90
2014[c/]	219,800	261,878	0.84
2015	342,200	--	--

TABLE II-4. Comparisons of preseason forecasts and postseason estimates for ocean abundance of adult Klamath River fall Chinook. (Page 2 of 4)

Year (t)	Preseason Forecast[a/] Sept. 1 (t-1)	Postseason Estimate Sept. 1 (t-1)	Pre/Postseason
		Age-4	
1985	56,875	57,500	0.99
1986	66,250	140,823	0.47
1987	206,125	341,875	0.60
1988	186,375	234,751	0.79
1989	215,500	177,245	1.22
1990	50,125	103,951	0.48
1991	44,625	37,171	1.20
1992	44,750	28,169	1.59
1993	39,125	15,037	2.60
1994	86,125	41,736	2.06
1995	47,000	28,725	1.64
1996	268,500	225,521	1.19
1997	53,875	62,820	0.86
1998	46,000	44,733	1.03
1999	78,750	30,456	2.59
2000	38,875	44,176	0.88
2001	247,000	133,801	1.85
2002	143,800	98,927	1.45
2003	132,400	192,085	0.69
2004	134,500	104,636	1.29
2005	48,900	38,079	1.28
2006	63,700	63,383	1.01
2007	26,100	33,615	0.78
2008	157,200	81,366	1.93
2009	25,200	21,124	1.19
2010	106,300	62,092	1.71
2011	61,600	64,570	0.95
2012	79,600	74,318	1.07
2013	331,200	194,575	1.70
2014[c/]	67,400	178,533	0.38
2015	71,100	--	--

TABLE II-4. Comparisons of preseason forecasts and postseason estimates for ocean abundance of adult Klamath River fall Chinook. (Page 3 of 4)

Year (t)	Preseason Forecast[a/] Sept. 1 (t-1)	Postseason Estimate Sept. 1 (t-1)	Pre/Postseason
		Age-5	
1985	NA	11,113	NA
1986	NA	6,376	NA
1987	5,250	19,414	0.27
1988	13,250	14,632	0.91
1989	10,125	9,612	1.05
1990	7,625	7,767	0.98
1991	1,500	2,774	0.54
1992	1,250	1,444	0.87
1993	1,125	1,759	0.64
1994	500	1,468	0.34
1995	2,000	3,805	0.53
1996	1,125	787	1.43
1997	7,875	8,859	0.89
1998	3,250	2,382	1.36
1999	2,000	2,106	0.95
2000	1,375	1,051	1.31
2001	1,250	258	4.84
2002	9,700	6,933	1.40
2003	6,500	1,915	3.39
2004	9,700	17,128	0.57
2005	5,200	6,857	0.76
2006	2,200	5,236	0.42
2007	4,700	2,911	1.61
2008	1,900	2,900	0.66
2009	5,600	7,059	0.79
2010	1,800	517	3.48
2011	5,000	2,753	1.82
2012	4,600	5,112	0.90
2013	5,700	3,948	1.44
2014[c/]	12,100	7,571	1.60
2015	10,400	--	--

TABLE II-4. Comparisons of preseason forecasts and postseason estimates for ocean abundance of adult Klamath River fall Chinook. (Page 4 of 4)

Year (t)	Preseason Forecast[a/] Sept. 1 (t-1)	Postseason Estimate Sept. 1 (t-1)	Pre/Postseason
		Total Adults	
1985	169,875[d/]	344,613	0.49
1986	492,250[d/]	1,451,608	0.34
1987	723,175	1,142,412	0.63
1988	570,425	1,005,644	0.57
1989	676,225	556,685	1.21
1990	536,750	287,840	1.86
1991	222,325	109,369	2.03
1992	96,000	69,115	1.39
1993	334,650	185,269	1.81
1994	224,625	163,117	1.38
1995	318,000	816,790	0.39
1996	749,425	418,580	1.79
1997	286,350	211,832	1.35
1998	225,250	201,914	1.12
1999	165,550	161,628	1.02
2000	389,850	662,325	0.59
2001	435,450	490,187	0.89
2002	362,500	619,295	0.59
2003	310,200	593,414	0.52
2004	216,300	281,211	0.77
2005	239,800	234,912	1.02
2006	110,000	159,225	0.69
2007	546,200	413,366	1.32
2008	190,700	152,269	1.25
2009	505,700	268,896	1.88
2010	331,500	255,373	1.30
2011	371,200	307,545	1.21
2012	1,651,800	879,245	1.88
2013	727,600	632,512	1.15
2014[c/]	299,300	447,982	0.67
2015	423,800	--	--

a/ Original preseason forecasts for years 1985-2001 were for May 1 (t); converted to Sept. 1 (t-1) forecasts by dividing the May 1 (t) number by the assumed Sept. 1 (t-1) through May 1 (t) survival rate in those years: 0.5 age-3, 0.8 age-4, 0.8 age-5.

b/ A scalar of 0.75 was applied to the jack count to produce the forecast because, (1) most jacks returned to the Trinity River, and (2) the jack count was outside the database range.

c/ Postseason estimates are preliminary.

d/ Does not include age-5 adults.

TABLE II-5. Summary of management objectives and predictor performance for Klamath River fall Chinook.

	Preseason Ocean Abundance Forecast[a/] Sept. 1 (t-1)		Postseason Ocean Abundance Estimate Sept. 1 (t-1)		Preseason Age-4 Harvest Rate Forecast[b/]		Postseason Age-4 Harvest Rate Estimate[c/]		Preseason Adult Harvest Forecast		Postseason Adult Harvest Estimate	
Year(t)	Age-3	Age-4	Age-3	Age-4	Ocean	River	Ocean	River	Ocean	River	Ocean	River
1986	426,000	66,250	1,304,409	140,823	0.28	0.50	0.46	0.67	72,000	37,700	301,999	46,154
1987	511,800	206,125	781,123	341,875	0.28	0.53	0.43	0.44	121,200	78,200	277,203	73,265
1988	370,800	186,375	756,261	234,751	0.31	0.53	0.39	0.52	114,100	65,400	253,888	73,854
1989	450,600	215,500	369,828	177,245	0.30	0.49	0.36	0.70	128,100	67,600	125,117	54,340
1990	479,000	50,125	176,122	103,951	0.30	0.49	0.55	0.36	85,100	31,200	114,780	11,459
1991	176,200	44,625	69,424	37,171	0.13	0.28	0.18	0.45	16,700	12,800	9,871	13,581
1992	50,000	44,750	39,502	28,169	0.06	0.15	0.07	0.27	4,200	4,200	3,142	6,787
1993	294,400	39,125	168,473	15,037	0.12	0.43	0.16	0.49	20,100	22,500	11,355	12,808
1994	138,000	86,125	119,913	41,736	0.07	0.20	0.09	0.29	10,400	14,300	7,961	13,524
1995	269,000	47,000	784,260	28,725	0.07	0.32	0.14	0.19	13,500	18,500	32,233	21,637
1996	479,800	268,500	192,272	225,521	0.17	0.66	0.16	0.39	88,400	129,100	45,155	69,241
1997	224,600	53,875	140,153	62,820	0.10	0.43	0.06	0.26	17,600	26,500	8,656	17,764
1998	176,000	46,000	154,799	44,733	0.07	0.29	0.09	0.30	10,200	14,800	4,891	17,897
1999	84,800	78,750	129,066	30,456	0.10	0.28	0.09	0.45	12,300	18,100	5,116	16,942
2000	349,600	38,875	617,098	44,176	0.11	0.53	0.10	0.25	24,000	32,400	42,050	35,066
2001	187,200	247,000	356,128	133,801	0.14	0.61	0.09	0.29	45,600	105,300	21,747	50,780
2002	209,000	143,800	513,435	98,927	0.13	0.57	0.15	0.26	30,000	70,900	28,892	35,069
2003	171,300	132,400	399,414	192,085	0.16	0.50	0.21	0.28	30,600	52,200	70,604	39,715
2004	72,100	134,500	159,447	104,636	0.15	0.38	0.34	0.48	26,500	35,800	63,703	29,807
2005	185,700	48,900	189,976	38,079	0.08	0.16	0.20	0.19	7,100	9,600	12,826	10,001
2006	44,100	63,700	90,606	63,383	0.11	0.23	0.10	0.18	10,000	10,000	10,401	10,345
2007	515,400	26,100	376,840	33,615	0.16	0.63	0.21	0.56	30,200	51,400	30,244	33,884
2008	31,600	157,200	68,003	81,366	0.02	0.43	0.10	0.38	4,500	49,500	8,679	24,180
2009	474,900	25,200	240,713	21,124	0.00	0.57	0.00	0.40	100	61,700	51	34,040
2010	223,400	106,300	192,764	62,092	0.12	0.49	0.04	0.40	22,600	46,600	4,497	32,920
2011	304,600	61,600	240,222	64,570	0.16	0.54	0.08	0.34	26,900	42,700	12,003	30,502
2012	1,567,600	79,600	799,815	74,318	0.16	0.77	0.08	0.51	92,400	227,600	34,991	109,263
2013	390,700	331,200	433,989	194,575	0.16	0.62	0.20	0.51	74,800	154,800	59,699	82,835
2014[d/]	219,800	67,400	261,878	178,533	0.16	0.40	0.17	0.25	23,200	31,400	39,006	31,190
2015	342,200	71,100	-	-	-	-	-	-	-	-	-	-

a/ Original preseason forecasts for years 1986-2001 were for May 1 (t); converted to Sept. 1 (t-1) forecasts by dividing the May 1 (t) number by the assumed Sept. 1 (t-1) through May 1 (t) survival rate in those years: 0.5 age-3, 0.8 age-4, 0.8 age-5.

b/ Ocean harvest rate forecast is the fraction of the predicted ocean abundance expected to be harvested Sept. 1 (t-1) through August 31(t). River harvest rate forecast is the fraction of the predicted river run expected to be harvested in river fisheries. Original ocean harvest rate forecasts for year (t), 1986-2001, were based on a May 1 (t) ocean abundance denominator; converted to Sept. 1 (t-1) abundance denominator by multiplying former values by 0.8 (assumed age-4 survival rate between Sept. 1 (t-1) and May 1 (t) in those years).

c/ Ocean harvest rate is the fraction of the postseason ocean abundance harvested Sept. 1 (t-1) through August 31 (t). River harvest rate is the fraction of the river run harvested by river fisheries.

d/ Postseason estimates are preliminary.

TABLE II-6. Harvest levels and rates of age-3 and age-4 Klamath River fall Chinook. (Page 1 of 4)

	Ocean Fisheries (Sept. 1 (t-1) - Aug. 31 (t))							River Fisheries (t)		
	KMZ			North of	South of					
Year (t)	Troll	Sport	Subtotal	KMZ	KMZ	Subtotal	Ocean Total	Net	Sport	Total
					HARVEST (numbers of fish)					
Age-3										
1986	35,632	4,876	40,508	73,777	122,913	196,690	237,198	8,100	18,100	26,200
1987	17,237	5,082	22,319	43,432	56,368	99,800	122,119	11,400	11,400	22,800
1988	15,999	5,165	21,164	24,317	107,971	132,288	153,452	12,500	15,600	28,100
1989	6,456	11,783	18,239	15,315	23,729	39,044	57,283	2,700	900	3,600
1990	81	4,357	4,438	36,575	11,004	47,579	52,017	1,300	1,400	2,700
1991	0	1,022	1,022	344	810	1,154	2,176	2,123	1,277	3,400
1992	0	0	0	972	0	972	972	970	251	1,221
1993	0	822	822	833	6,424	7,257	8,079	5,426	2,917	8,343
1994	42	604	646	0	3,387	3,387	4,033	4,543	965	5,508
1995	0	999	999	12,213	14,810	27,023	28,022	11,840	5,536	17,376
1996	0	0	0	0	9,314	9,314	9,314	12,363	3,661	16,024
1997	0	232	232	620	1,215	1,835	2,067	2,166	2,736	4,902
1998	0	6	6	298	466	764	770	2,231	5,781	8,012
1999	63	180	243	1,262	433	1,695	1,938	4,981	1,748	6,729
2000	404	3,282	3,686	8,604	25,203	33,807	37,493	22,458	4,893	27,351
2001	113	105	218	2,749	6,082	8,831	9,049	17,885	7,294	25,179
2002	220	783	1,003	1,500	9,913	11,413	12,416	11,734	6,258	17,992
2003	172	678	850	1,881	27,249	29,130	29,980	6,996	5,061	12,057
2004	402	970	1,372	9,710	7,324	17,034	18,406	4,679	2,051	6,730
2005	0	568	568	619	2,381	3,000	3,568	4,394	1,641	6,035
2006	0	477	477	32	341	373	850	2,388	13	2,401
2007	770	8,099	8,869	4,193	9,365	13,558	22,427	17,543	5,734	23,277
2008	0	0	0	0	0	0	0	3,225	608	3,833
2009	0	51	51	0	0	0	51	19,820	4,715	24,535
2010	112	28	140	0	1,664	1,664	1,804	13,132	1,884	15,016
2011	334	1,121	1,455	35	4,835	4,870	6,325	13,286	2,630	15,916
2012	1,132	11,457	12,589	935	13,213	14,148	26,737	70,409	12,104	82,513
2013[a/]	385	5,497	5,882	857	11,822	12,679	18,561	18,996	7,675	26,671
2014[a/]	0	584	584	4,185	1,594	5,779	6,363	3,379	1,726	5,105

TABLE II-6. Harvest levels and rates of age-3 and age-4 Klamath River fall Chinook. (Page 2 of 4)

	Ocean Fisheries (Sept. 1 (t-1) - Aug. 31 (t))							River Fisheries (t)		
	KMZ			North of	South of					
Year (t)	Troll	Sport	Subtotal	KMZ	KMZ	Subtotal	Ocean Total	Net	Sport	Total
					HARVEST (numbers of fish)					
Age-4										
1986	7,745	1,113	8,858	23,486	31,913	55,399	64,257	17,000	2,900	19,900
1987	21,736	4,427	26,163	70,645	48,832	119,477	145,640	41,000	8,500	49,500
1988	11,868	3,595	15,463	26,376	50,287	76,663	92,126	38,600	6,200	44,800
1989	6,064	9,735	15,799	32,116	16,608	48,724	64,523	41,000	7,700	48,700
1990	3,997	2,919	6,916	39,627	10,624	50,251	57,167	6,000	2,200	8,200
1991	0	1,001	1,001	1,513	4,134	5,647	6,648	7,593	2,016	9,609
1992	171	55	226	1,783	12	1,795	2,021	4,360	723	5,083
1993	0	0	0	849	1,616	2,465	2,465	3,786	243	4,029
1994	0	1,124	1,124	1,168	1,499	2,667	3,791	6,666	818	7,484
1995	0	242	242	1,879	1,771	3,650	3,892	2,957	480	3,437
1996	773	3,464	4,237	10,337	20,741	31,078	35,315	43,959	9,080	53,039
1997	3	172	175	463	2,994	3,457	3,632	8,734	2,586	11,320
1998	0	105	105	3,942	0	3,942	4,047	7,164	1,822	8,986
1999	15	381	396	1,657	696	2,353	2,749	8,789	494	9,283
2000	117	895	1,012	2,327	1,076	3,403	4,415	6,733	756	7,489
2001	1,312	1,604	2,916	5,819	3,926	9,745	12,661	20,759	4,819	25,578
2002	1,938	827	2,765	2,811	9,416	12,227	14,992	11,929	4,063	15,992
2003	834	918	1,752	7,852	29,996	37,848	39,600	22,754	4,592	27,346
2004	1,416	1,210	2,626	11,458	21,862	33,320	35,946	17,623	1,751	19,374
2005	247	317	564	5,243	1,909	7,152	7,716	3,048	304	3,352
2006	196	725	921	4,192	985	5,177	6,098	7,569	42	7,611
2007	270	2,336	2,606	1,991	2,472	4,463	7,069	8,987	502	9,489
2008	6,376	1,105	7,481	546	113	659	8,140	17,891	1,260	19,151
2009	0	0	0	0	0	0	0	5,831	706	6,537
2010	42	112	154	886	1,482	2,368	2,522	16,630	1,134	17,764
2011	417	176	593	1,043	3,780	4,823	5,416	12,587	1,466	14,053
2012	337	2,093	2,430	762	2,966	3,728	6,158	23,285	1,718	25,003
2013	4,328	6,325	10,653	4,091	24,332	28,423	39,076	43,671	12,043	55,714
2014[a/]	1,254	1,389	2,643	18,995	8,658	27,653	30,296	21,257	3,353	24,610

TABLE II-6. Harvest levels and rates of age-3 and age-4 Klamath River fall Chinook. (Page 3 of 4)

	Ocean Fisheries (Sept. 1 (t-1) - Aug. 31 (t))							River Fisheries (t)		
	KMZ			North of	South of					
Year (t)	Troll	Sport	Subtotal	KMZ	KMZ	Subtotal	Ocean Total	Net	Sport	Total
					HARVEST RATE[b/]					
Age-3										
1986	0.03	0.00	0.03	0.06	0.09	0.15	0.18	0.05	0.11	0.16
1987	0.02	0.01	0.03	0.06	0.07	0.13	0.16	0.13	0.13	0.25
1988	0.02	0.01	0.03	0.03	0.14	0.17	0.20	0.12	0.15	0.28
1989	0.02	0.03	0.05	0.04	0.06	0.11	0.15	0.05	0.02	0.07
1990	0.00	0.02	0.03	0.21	0.06	0.27	0.30	0.11	0.12	0.23
1991	0.00	0.01	0.01	0.00	0.01	0.02	0.03	0.21	0.13	0.34
1992	0.00	0.00	0.00	0.02	0.00	0.02	0.02	0.14	0.04	0.18
1993	0.00	0.00	0.00	0.00	0.04	0.04	0.05	0.11	0.06	0.17
1994	0.00	0.01	0.01	0.00	0.03	0.03	0.03	0.12	0.03	0.15
1995	0.00	0.00	0.00	0.02	0.02	0.03	0.04	0.06	0.03	0.09
1996	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.32	0.09	0.41
1997	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.06	0.08	0.14
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.14
1999	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.17	0.06	0.23
2000	0.00	0.01	0.01	0.01	0.04	0.05	0.06	0.12	0.03	0.15
2001	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.18	0.07	0.25
2002	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.12	0.07	0.19
2003	0.00	0.00	0.00	0.00	0.07	0.07	0.08	0.07	0.05	0.13
2004	0.00	0.01	0.01	0.06	0.05	0.11	0.12	0.14	0.06	0.20
2005	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.10	0.04	0.14
2006	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.13	0.00	0.13
2007	0.00	0.02	0.02	0.01	0.02	0.04	0.06	0.15	0.05	0.20
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.03	0.21
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.06	0.31
2010	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.28	0.04	0.33
2011	0.00	0.00	0.01	0.00	0.02	0.02	0.03	0.23	0.04	0.27
2012	0.00	0.01	0.02	0.00	0.02	0.02	0.03	0.29	0.05	0.34
2013[a/]	0.00	0.01	0.01	0.00	0.03	0.03	0.04	0.34	0.14	0.48
2014[a/]	0.00	0.00	0.00	0.02	0.01	0.02	0.02	0.06	0.03	0.09

TABLE II-6. Harvest levels and rates of age-3 and age-4 Klamath River fall Chinook. (Page 4 of 4)

	Ocean Fisheries (Sept. 1 (t-1) - Aug. 31 (t))							River Fisheries (t)		
	KMZ			North of	South of					
Year (t)	Troll	Sport	Subtotal	KMZ	KMZ	Subtotal	Ocean Total	Net	Sport	Total
					HARVEST RATE[b/]					
Age-4										
1986	0.05	0.01	0.06	0.17	0.23	0.39	0.46	0.57	0.10	0.67
1987	0.06	0.01	0.08	0.21	0.14	0.35	0.43	0.36	0.08	0.44
1988	0.05	0.02	0.07	0.11	0.21	0.33	0.39	0.45	0.07	0.52
1989	0.03	0.05	0.09	0.18	0.09	0.27	0.36	0.59	0.11	0.70
1990	0.04	0.03	0.07	0.38	0.10	0.48	0.55	0.26	0.10	0.36
1991	0.00	0.03	0.03	0.04	0.11	0.15	0.18	0.35	0.09	0.45
1992	0.01	0.00	0.01	0.06	0.00	0.06	0.07	0.23	0.04	0.27
1993	0.00	0.00	0.00	0.06	0.11	0.16	0.16	0.46	0.03	0.49
1994	0.00	0.03	0.03	0.03	0.04	0.06	0.09	0.26	0.03	0.29
1995	0.00	0.01	0.01	0.07	0.06	0.13	0.14	0.16	0.03	0.19
1996	0.00	0.02	0.02	0.05	0.09	0.14	0.16	0.32	0.07	0.39
1997	0.00	0.00	0.00	0.01	0.05	0.06	0.06	0.20	0.06	0.26
1998	0.00	0.00	0.00	0.09	0.00	0.09	0.09	0.24	0.06	0.30
1999	0.00	0.01	0.01	0.05	0.02	0.08	0.09	0.43	0.02	0.45
2000	0.00	0.02	0.02	0.05	0.02	0.08	0.10	0.22	0.02	0.25
2001	0.01	0.01	0.02	0.04	0.03	0.07	0.09	0.24	0.05	0.29
2002	0.02	0.01	0.03	0.03	0.10	0.12	0.15	0.19	0.06	0.26
2003	0.00	0.00	0.01	0.04	0.16	0.20	0.21	0.24	0.05	0.28
2004	0.01	0.01	0.03	0.11	0.21	0.32	0.34	0.43	0.04	0.48
2005	0.01	0.01	0.01	0.14	0.05	0.19	0.20	0.17	0.02	0.19
2006	0.00	0.01	0.01	0.07	0.02	0.08	0.10	0.18	0.00	0.18
2007	0.01	0.07	0.08	0.06	0.07	0.13	0.21	0.53	0.03	0.56
2008	0.08	0.01	0.09	0.01	0.00	0.01	0.10	0.36	0.03	0.38
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.04	0.40
2010	0.00	0.00	0.00	0.01	0.02	0.04	0.04	0.37	0.03	0.40
2011	0.01	0.00	0.01	0.02	0.06	0.07	0.08	0.31	0.04	0.34
2012	0.00	0.03	0.03	0.01	0.04	0.05	0.08	0.47	0.03	0.51
2013	0.02	0.03	0.05	0.02	0.13	0.15	0.20	0.40	0.11	0.51
2014[a/]	0.01	0.01	0.01	0.11	0.05	0.15	0.17	0.22	0.03	0.25

a/ Preliminary (incomplete cohort).

b/ Ocean harvest rates are the fraction of Sept. 1 (t-1) ocean abundance harvested in these fisheries. River harvest rates are the fraction of the river run (t) harvested in these fisheries.

TABLE II-7. Rogue River fall Chinook inriver run and ocean population indices.

Return Year	Inriver Run Index in Thousands of Fish[a/]					Ocean Harvest Rate by Age[b/]		Rogue Ocean Population Index (ROPI) in Thousands of Fish[c/d/]			
	Age-2	Age-3	Age-4	Age-5-6	Total[d/]	Age-3	Age-4-6	Age-3	Age-4	Age-5-6	Total
1982	37.4	36.3	58.9	3.9	136.5	0.30	0.52	321.5	118.7	15.1	455.3
1983	6.9	22.7	15.7	1.4	46.7	0.19	0.60	452.0	86.1	43.7	581.8
1984	10.0	16.2	15.6	1.5	43.3	0.08	0.38	83.8	53.9	11.7	149.4
1985	51.4	9.7	23.1	4.2	88.4	0.11	0.24	121.1	38.3	11.6	171.0
1986	87.3	116.2	26.5	3.9	233.9	0.18	0.46	622.5	23.1	17.9	663.5
1987	32.7	61.9	56.6	4.4	155.6	0.16	0.43	1,056.3	275.3	20.2	1,351.8
1988	12.8	17.7	54.0	4.7	89.2	0.20	0.39	395.1	146.7	42.2	584.0
1989	16.2	30.7	40.0	8.2	95.1	0.15	0.36	155.0	41.9	40.4	237.3
1990	4.8	9.7	10.4	1.4	26.3	0.30	0.55	195.9	72.8	30.7	299.4
1991	3.9	10.1	6.6	0.7	21.3	0.03	0.18	58.4	23.1	7.9	89.4
1992	33.1	18.5	22.1	6.1	79.8	0.02	0.07	47.3	24.0	5.0	76.3
1993	12.0	31.5	6.8	2.4	52.7	0.05	0.16	400.7	43.8	17.0	461.5
1994	14.4	38.2	31.3	3.9	87.8	0.03	0.09	145.3	74.6	5.5	225.4
1995	20.2	46.1	19.4	4.6	90.3	0.04	0.14	174.0	90.4	23.7	288.1
1996	16.8	26.1	23.3	2.7	68.9	0.05	0.16	244.9	109.2	15.2	369.3
1997	18.6	23.7	14.8	4.3	61.4	0.01	0.06	202.7	62.0	17.5	282.2
1998	7.1	29.0	12.9	1.2	50.2	0.01	0.09	224.9	56.3	11.8	293.0
1999	19.6	15.5	16.9	6.8	58.8	0.02	0.09	86.5	68.6	9.7	164.8
2000	13.6	61.7	23.0	7.8	106.1	0.06	0.10	236.7	36.8	13.7	287.2
2001	27.9	29.5	33.9	16.6	107.9	0.03	0.09	164.8	146.2	18.6	329.6
2002	43.8	64.1	63.1	30.6	201.6	0.02	0.15	337.9	70.0	28.4	436.3
2003	20.1	66.9	99.0	47.0	233.0	0.08	0.21	530.4	151.9	52.2	734.5
2004	20.3	30.6	69.5	35.4	155.8	0.12	0.34	243.3	158.4	82.5	484.2
2005[f/]	5.0	17.7	28.7	11.6	63.0	0.02	0.20	245.2	72.6	58.2	376.0
2006	7.4	11.6	19.6	7.1	45.7	0.01	0.10	60.4	42.1	23.5	126.0
2007	3.4	15.8	16.6	12.7	48.5	0.06	0.21	89.5	27.5	15.8	132.8
2008	16.2	7.6	14.1	4.2	42.1	0.00	0.10	41.3	37.6	15.4	94.3
2009	15.2	34.3	28.0	4.5	82.0	0.00	0.00	195.9	18.0	11.4	225.3
2010	15.1	23.6	26.5	2.7	67.9	0.01	0.04	183.4	81.3	21.5	286.2
2011	31.9	25.1	41.1	5.5	103.6	0.03	0.08	183.2	56.0	19.9	259.1
2012	11.0	39.9	28.0	5.3	84.2	0.03	0.08	385.6	59.4	31.2	476.2
2013	24.3	17.0	66.1	3.1	110.5	0.04 [e/]	0.20	133.4 [e/]	94.5 [e/]	21.7	249.6 [e/]
2014	12.5	20.5	29.2	6.7	68.9	-	0.17 [e/]	295.5 [e/]	40.5 [f/]	49.0 [f/]	385.0 [f/]
2015	NA	NA	NA	NA	NA	-	-	151.5 [f/]	48.5 [f/]	22.8 [f/]	222.8 [f/]

a/ Huntley Park passage estimate and estuary harvest. Age composition from Huntley Park scale analysis.

b/ Exploitation rates since 1981 are based on Klamath River fall Chinook cohort analysis.

c/ Based on cohort reconstruction methods. Index values predicted from regression equations; postseason estimates are not available.

d/ Rogue ocean abundances initially reconstructed to May 1 (t); converted to Sept. 1 (t-1) forecasts by dividing the May 1 (t) number by the assumed Sept. 1 (t-1) through May 1 (t) survival rate: 0.5 age-3, 0.8 age-4, 0.8 age-5, 0.8 age-6.

e/ Preliminary, complete cohort not available.

f/ Preseason forecast.

TABLE II-8. Predicted and postseason returns of Columbia River adult fall Chinook in thousands of fish. (Page 1 of 3)

Year	March Preseason Forecast[a/]	April STT Modeled Forecast[b/]	Postseason Return	March Pre/Postseason	April Pre/Postseason
			URB		
1990	127.20	126.90	153.60	0.83	0.83
1991	88.80	88.90	103.30	0.86	0.86
1992	68.40	66.30	81.00	0.84	0.82
1993	84.50	82.70	102.90	0.82	0.80
1994	85.40	94.70	132.80	0.64	0.71
1995	103.70	125.00	106.50	0.97	1.17
1996	88.90	94.20	143.20	0.62	0.66
1997	166.40	158.00	161.70	1.03	0.98
1998	150.80	141.80	142.30	1.06	1.00
1999	147.50	102.10	166.10	0.89	0.61
2000	171.10	208.20	155.70	1.10	1.34
2001	127.20	132.70	232.60	0.55	0.57
2002	281.00	273.80	276.90	1.01	0.99
2003	280.40	253.20	373.20	0.75	0.68
2004	292.20	287.00	367.90	0.79	0.78
2005	352.20	354.60	268.70	1.31	1.32
2006	253.90	249.10	230.40	1.10	1.08
2007	182.40	185.20	112.60	1.62	1.64
2008	162.50	165.90	196.90	0.83	0.84
2009	259.90	269.80	212.00	1.23	1.27
2010	310.80	319.10	324.90	0.96	0.98
2011	398.20	399.50	324.10	1.23	1.23
2012	353.50	353.00	298.10	1.19	1.18
2013	432.50	434.72	784.10	0.55	0.55
2014[c/]	973.30	919.40	684.20	1.42	1.34
2015	500.30	-	-	-	-
			LRW		
1990	23.70	23.40	20.30	1.17	1.15
1991	12.70	12.70	19.80	0.64	0.64
1992	17.40	16.70	12.50	1.39	1.34
1993	12.50	11.90	13.30	0.94	0.89
1994	14.70	13.20	12.20	1.20	1.08
1995	12.40	11.50	16.00	0.78	0.72
1996	8.80	8.10	14.60	0.60	0.55
1997	7.50	7.20	12.30	0.61	0.59
1998	8.10	7.00	7.30	1.11	0.96
1999	2.60	2.50	3.30	0.79	0.76
2000	3.50	2.70	10.20	0.34	0.26
2001	16.70	18.50	15.70	1.06	1.18
2002	18.70	18.30	24.90	0.75	0.73
2003	24.60	23.40	26.00	0.95	0.90
2004	24.10	24.20	22.30	1.08	1.09
2005	20.20	21.40	16.80	1.20	1.27
2006	16.60	16.60	18.10	0.92	0.92
2007	10.10	10.00	4.30	2.35	2.33
2008	3.80	3.80	7.10	0.54	0.54
2009	8.50	8.60	7.50	1.13	1.15
2010	9.70	10.00	10.90	0.89	0.92
2011	12.50	13.10	15.20	0.82	0.86
2012	16.20	16.20	13.90	1.17	1.17
2013	14.20	14.28	25.80	0.55	0.55
2014[c/]	34.20	33.40	25.80	1.33	1.29
2015	18.90	-	-	-	-

TABLE II-8. Predicted and postseason returns of Columbia River adult summer and fall Chinook in thousands of fish. (Page 2 of 3)

Year	March Preseason Forecast[a/]	April STT Modeled Forecast[b/]	Postseason Return	March Pre/Postseason	April Pre/Postseason
			LRH		
1990	68.50	65.50	60.00	1.14	1.09
1991	71.40	73.10	62.70	1.14	1.17
1992	113.20	121.50	62.60	1.81	1.94
1993	79.30	77.70	52.30	1.52	1.49
1994	36.10	46.50	53.60	0.67	0.87
1995	35.80	42.40	46.40	0.77	0.91
1996	37.70	48.30	75.50	0.50	0.64
1997	54.20	68.70	57.40	0.94	1.20
1998	19.20	22.50	45.30	0.42	0.50
1999	34.80	38.20	40.00	0.87	0.96
2000	23.70	26.40	27.00	0.88	0.98
2001	32.20	30.50	94.30	0.34	0.32
2002	137.60	133.00	156.40	0.88	0.85
2003	115.90	116.90	155.00	0.75	0.75
2004	77.10	79.00	108.90	0.71	0.73
2005	74.10	78.44	78.30	0.95	1.00
2006	55.80	57.50	58.30	0.96	0.99
2007	54.90	54.40	32.70	1.68	1.66
2008	59.00	55.90	60.30	0.98	0.93
2009	88.80	88.20	76.70	1.16	1.15
2010	90.60	85.60	103.00	0.88	0.83
2011	133.50	128.90	109.00	1.22	1.18
2012	127.00	128.40	84.80	1.50	1.51
2013	88.00	87.44	103.20	0.85	0.85
2014[c/]	110.00	100.70	101.80	1.08	0.99
2015	94.90	-	-	-	-
			SCH		
1991	56.30	61.40	52.40	1.07	1.17
1992	40.90	41.30	29.50	1.39	1.40
1993	19.90	18.20	16.80	1.18	1.08
1994	20.20	28.90	18.50	1.09	1.56
1995	17.50	22.50	33.80	0.52	0.67
1996	27.60	35.40	33.10	0.83	1.07
1997	21.90	25.70	27.40	0.80	0.94
1998	14.20	14.20	20.20	0.70	0.70
1999	65.80	61.00	50.20	1.31	1.22
2000	21.90	26.90	20.50	1.07	1.31
2001	56.60	61.90	125.00	0.45	0.50
2002	144.40	136.00	160.80	0.90	0.85
2003	96.90	101.90	180.60	0.54	0.56
2004	138.00	150.00	175.30	0.79	0.86
2005	114.10	115.79	93.10	1.23	1.24
2006	50.00	51.80	27.90	1.79	1.86
2007	21.80	21.30	14.60	1.49	1.46
2008	87.20	86.20	91.90	0.95	0.94
2009	59.30	56.50	49.00	1.21	1.15
2010	169.00	162.90	130.80	1.29	1.25
2011	116.40	116.70	70.10	1.66	1.66
2012	63.80	60.00	56.80	1.12	1.06
2013	38.00	36.72	86.60	0.44	0.42
2014[c/]	115.10	103.30	127.00	0.91	0.81
2015	160.50	-	-	-	-

TABLE II-8. Predicted and postseason returns of Columbia River adult summer and fall Chinook in thousands of fish. (Page 3 of 3)

Year	March Preseason Forecast[a/]	April STT Modeled Forecast[b/]	Postseason Return	March Pre/Postseason	April Pre/Postseason
			MCB		
1990	69.50	69.30	58.90	1.18	1.18
1991	48.40	48.50	35.40	1.37	1.37
1992	42.50	40.70	31.10	1.37	1.31
1993	33.00	32.30	27.50	1.20	1.17
1994	23.90	26.70	33.70	0.71	0.79
1995	25.00	30.00	34.20	0.73	0.88
1996	40.80	43.20	59.70	0.68	0.72
1997	72.10	61.90	59.00	1.22	1.05
1998	47.80	44.90	36.80	1.30	1.22
1999	38.30	27.70	50.70	0.76	0.55
2000	50.60	61.60	36.80	1.38	1.67
2001	43.50	45.30	76.40	0.57	0.59
2002	96.20	91.80	108.40	0.89	0.85
2003	104.80	94.60	150.20	0.70	0.63
2004	90.40	88.80	117.60	0.77	0.76
2005	89.40	89.73	98.00	0.91	0.92
2006	88.30	86.60	80.40	1.10	1.08
2007	68.00	69.10	46.90	1.45	1.47
2008	54.00	55.10	75.50	0.72	0.73
2009	94.40	97.90	73.10	1.29	1.34
2010	79.00	74.60	79.00	1.00	0.94
2011	100.00	100.40	85.40	1.17	1.18
2012	90.80	90.70	58.70	1.55	1.55
2013	105.20	96.33	243.40	0.43	0.40
2014[c/]	360.10	340.20	203.80	1.77	1.67
2015	113.30	-	-	-	-
			SUMMER		
2008	52.00		55.53	0.94	
2009	70.70		53.88	1.31	
2010	88.80		72.35	1.23	
2011	91.10		80.57	1.13	
2012	91.20	92.60	58.30	1.56	1.59
2013	73.50	78.50	67.57	1.09	1.16
2014[c/]	67.50	64.70	78.30	0.86	0.83
2015	73.00		-	-	

a/ March preseason forecasts are ocean escapements based on terminal run size and stock-specific cohort relationships affected by the historical "normal" ocean fisheries, generally between 1979 and the most recent complete broods.
b/ STT-modeled forecasts adjust March preseason forecasts for Council-adopted ocean regulations each year, and should provide a more accurate estimate of expected ocean escapement.
c/ Postseason estimates are preliminary.

TABLE II-9. Preseason forecasts and postseason estimates of Puget Sound run size for summer/fall Chinook in thousands of fish.[a/] (Page 1 of 4)

Year	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season
	Nooksack-Samish Hatchery and Natural			**East Sound Bay Hatchery**			**Skagit Hatchery**			**Skagit Natural**		
1993	50.4	32.3	1.53	3.2	3.8	0.84	1.0	1.4	0.71	14.0	6.9	2.00
1994	46.6	28.1	1.66	3.2	0.7	4.00	1.3	5.5	0.30	8.4	5.9	1.27
1995	38.5	22.3	1.73	3.5	0.2	17.50	1.6	3.4	0.48	5.0	9.2	0.52
1996	27.0	29.2	0.92	1.7	0.5	2.43	1.0	1.2	0.83	7.1	10.9	0.58
1997	34.0	41.7	0.99	1.2	1.2	1.00	0.1	0.0	-	6.4	6.1	1.03
1998	28.0	31.5	0.95	0.5	0.3	1.67	0.0	0.0	-	6.6	15.0	0.44
1999	27.0	42.1	0.66	2.3	0.3	7.67	0.0	0.0	-	7.6	5.3	1.46
2000	19.0	32.6	0.57	5.0	0.1	50.00	0.0	0.0	-	7.3	17.3	0.42
2001	34.9	65.6	0.55	1.6	0.9	16.00	0.0	0.0	-	9.1	14.1	0.65
2002	52.8	57.0	0.99	1.6	0.9	2.29	0.0	0.1	-	13.8	20.0	0.69
2003	45.8	30.0	1.51	1.6	0.2	8.00	0.0	0.3	-	13.7	10.3	1.38
2004	34.2	18.1	1.83	0.8	0.0	200.00	0.5	0.0	-	20.3	24.3	0.83
2005	19.5	16.5	1.07	0.4	0.0	13.33	0.7	0.4	3.50	23.4	23.4	0.99
2006	16.9	31.9	0.53	0.4	0.0	25.00	0.6	0.4	1.51	24.1	22.5	1.07
2007	18.8	26.5	0.71	0.4	0.0	66.67	1.1	0.4	2.75	15.0	13.0	1.15
2008	35.3	29.1	1.21	0.8	0.0	0.00	0.7	0.2	3.50	23.8	15.0	1.59
2009	23.0	20.9	1.10	0.1	0.0	25.00	0.6	0.1	6.00	23.4	12.5	1.87
2010	30.3	35.8	0.85	2.3	0.7	3.29	0.9	0.1	11.25	13.0	10.0	1.30
2011	37.5	33.3	1.13	0.4	0.7	0.57	1.5	0.1	15.00	14.3	9.2	1.55
2012	44.0	32.1	1.37	0.4	1.6	0.25	1.3	0.9	1.44	8.3	15.8	0.53
2013[b/]	47.2	32.8	1.44	2.0	1.1	1.82	0.3	0.9	0.33	12.9	13.0	0.99
2014	43.9	NA	NA	1.2	NA	NA	0.3	NA	NA	18.0	NA	NA
2015	38.6	-	-	1.2	-	-	0.6	-	-	11.8	-	-

TABLE II-9. Preseason forecasts and postseason estimates of Puget Sound run size for summer/fall Chinook in thousands of fish.[a/] (Page 2 of 4)

Year	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season
	Stillaguamish [c/] Natural			**Snohomish [c/] Hatchery**			**Snohomish [c/] Natural**			**Tulalip [c/] Hatchery**		
1993	NA	1.3	-	1.6	2.7	0.58	4.9	5.5	0.89	2.8	1.4	2.03
1994	NA	1.3	-	1.8	5.4	0.33	4.5	5.0	0.90	2.8	1.8	1.59
1995	1.8	0.9	1.92	2.2	4.0	0.54	4.3	4.0	1.08	2.3	8.5	0.27
1996	1.3	1.2	1.04	6.7	4.6	1.47	4.2	5.9	0.71	2.7	11.5	0.24
1997	1.6	1.2	1.36	7.7	12.0	0.64	5.2	4.4	1.19	4.0	8.7	0.46
1998	1.6	1.6	1.03	6.5	4.7	1.37	5.6	6.4	0.88	2.5	7.2	0.35
1999	1.5	1.1	1.36	7.8	4.7	1.65	5.6	4.8	1.16	4.5	15.2	0.30
2000	2.0	1.7	1.21	6.2	1.9	3.20	6.0	6.1	0.98	5.0	8.3	0.60
2001	1.7	1.4	1.22	4.1	0.9	4.57	5.8	8.4	0.69	5.5	5.1	1.08
2002	2.0	1.6	1.25	6.8	2.6	2.66	6.7	7.3	0.92	5.8	5.2	1.12
2003	2.0	1.0	1.98	9.4	5.8	1.63	5.5	5.6	0.99	6.0	8.7	0.69
2004	3.3	1.6	1.19	10.1	6.4	1.58	15.7	11.2	1.40	6.8	6.5	1.05
2005	2.0	1.2	1.42	9.9	4.0	2.48	14.2	5.0	2.84	6.4	7.4	0.86
2006	1.6	1.3	1.26	9.6	4.3	2.23	8.7	8.8	0.99	9.3	5.8	1.60
2007	1.9	0.8	2.38	8.7	6.6	1.32	12.3	4.0	3.08	8.4	6.1	1.38
2008	1.1	1.8	0.61	8.8	6.3	1.40	6.5	8.7	0.75	2.7	3.2	0.84
2009	1.7	1.2	1.42	4.9	2.2	2.23	8.4	2.3	3.65	4.0	1.7	2.35
2010	1.4	1.0	1.40	5.6	2.7	2.07	9.9	4.8	2.06	3.4	3.2	1.06
2011	1.8	1.3	1.38	5.2	3.1	1.68	7.4	2.0	3.70	3.5	5.8	0.60
2012	0.9	1.7	0.53	3.9	7.0	0.56	2.8	3.8	0.74	5.9	0.6	9.83
2013[b/]	1.3	1.8	0.72	5.9	6.7	0.88	3.6	3.7	0.97	10.9	0.8	13.63
2014	1.6	NA	NA	5.4	NA	NA	5.3	NA	NA	4.7	NA	NA
2015	0.5	-	-	3.3	-	-	4.2	-	-	1.3	-	-

TABLE II-9. Preseason forecasts and postseason estimates of Puget Sound run size for summer/fall Chinook in thousands of fish.[a/] (Page 3 of 4)

Year	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season
	South Puget Sound Hatchery			**South Puget Sound Natural**			**Strait of Juan de Fuca Hatchery**			**Strait of Juan de Fuca Natural**		
1993	61.8	43.1	1.68	26.5	9.6	1.34	0.7	1.0	3.50	3.1	1.6	1.29
1994	52.7	49.9	1.08	18.0	10.5	0.60	3.9	1.2	2.44	1.0	1.0	2.00
1995	49.6	75.4	0.67	21.7	24.9	0.63	3.0	0.7	30.00	0.9	2.3	0.33
1996	51.9	53.2	0.89	19.0	16.5	0.53	2.8	1.4	14.00	0.9	2.0	0.29
1997	65.1	38.3	1.40	18.2	15.9	0.88	2.2	1.0	7.33	0.8	2.9	0.23
1998	67.8	49.6	1.24	21.8	14.6	0.79	1.7	1.7	1.00	0.9	2.1	0.47
1999	59.4	67.3	0.71	19.6	33.5	1.15	1.9	0.7	2.71	0.9	2.7	0.33
2000	77.5	47.4	1.39	17.5	39.5	1.26	2.0	1.2	1.67	1.1	1.7	0.65
2001	73.7	76.6	0.76	16.2	60.6	0.80	0.0	1.7	0.00	3.5	2.0	1.75
2002	90.8	69.3	1.07	16.9	57.0	0.79	0.0	1.6	0.00	3.6	2.2	0.97
2003	86.6	57.2	1.14	19.6	38.6	1.28	0.0	1.3	0.00	3.4	2.8	0.72
2004	86.5	66.6	1.16	17.5	42.3	0.61	0.0	1.4	0.00	3.6	4.1	0.85
2005	83.1	73.9	0.95	17.7	19.0	0.46	0.0	1.4	0.00	4.2	2.1	2.00
2006	85.8	104.1	0.82	21.3	37.0	0.58	0.0	1.2	0.00	4.2	3.2	1.31
2007	83.0	140.3	0.59	17.0	30.1	0.56	0.0	0.8	0.00	4.4	1.3	3.38
2008	101.6	90.6	1.12	21.1	32.2	0.65	0.0	0.7	0.00	3.2	1.2	2.67
2009	93.0	72.7	1.28	17.2	13.3	1.29	0.0	1.5	0.00	2.4	1.3	1.85
2010	97.4	82.9	1.17	12.7	15.8	0.80	0.0	0.7	0.00	1.9	2.6	0.73
2011	118.6	83.9	1.41	8.9	20.6	0.43	0.0	0.7	0.00	2.5	2.9	0.86
2012	95.8	61.9	1.55	8.9	23.0	0.39	0.0	1.2	0.00	2.9	2.1	1.38
2013[b/]	102.0	75.5	1.35	5.0	22.2	0.23	2.7	2.1	1.29	1.6	4.8	0.33
2014	96.7	NA	NA	4.8	NA	NA	3.8	NA	NA	1.5	NA	NA
2015	62.4	-	-	3.8	-	-	4.9	-	-	3.5	-	-

TABLE II-9. Comparison of preseason forecasts and postseason estimates of Puget Sound run size for summer/fall Chinook in thousands of fish.[a/] (Page 4 of 4)

Year	Preseason Forecast	Postseason Return	Pre/Post-season
	Hood Canal Hatchery and Natural		
1993	NA	9.2	-
1994	11.7	8.1	1.44
1995	11.5	7.8	1.47
1996	3.9	16.2	0.24
1997	9.0	30.2	0.30
1998	2.7	20.9	0.13
1999	6.7	30.4	0.22
2000	14.0	34.4	0.41
2001	19.2	26.1	0.74
2002	25.3	30.2	0.84
2003	24.0	33.0	0.73
2004	29.6	34.3	0.86
2005	30.6	54.7	0.56
2006	30.2	40.7	0.74
2007	47.5	32.5	1.46
2008	36.8	33.1	1.11
2009	42.6	38.0	1.12
2010	45.0	37.8	1.19
2011	40.6	53.2	0.76
2012	46.8	90.3	0.52
2013[b/]	66.2	71.7	0.92
2014	84.1	NA	NA
2015	62.1	-	-

a/ Puget Sound run size is defined as the run available to Puget Sound net fisheries. Does not include fish caught by troll and recreational fisheries inside Puget Sound.

b/ Postseason returns are preliminary.

c/ These numbers are in terms of terminal run of Chinook returning to area 8A. This includes all adult Chinook harvested in the net fisheries in Areas 8A, 8D, the Stillaguamish and Snohomish Rivers harvest in sport fisheries in Area 8D and the Stillaguamish and Snohomish Rivers and escapement.

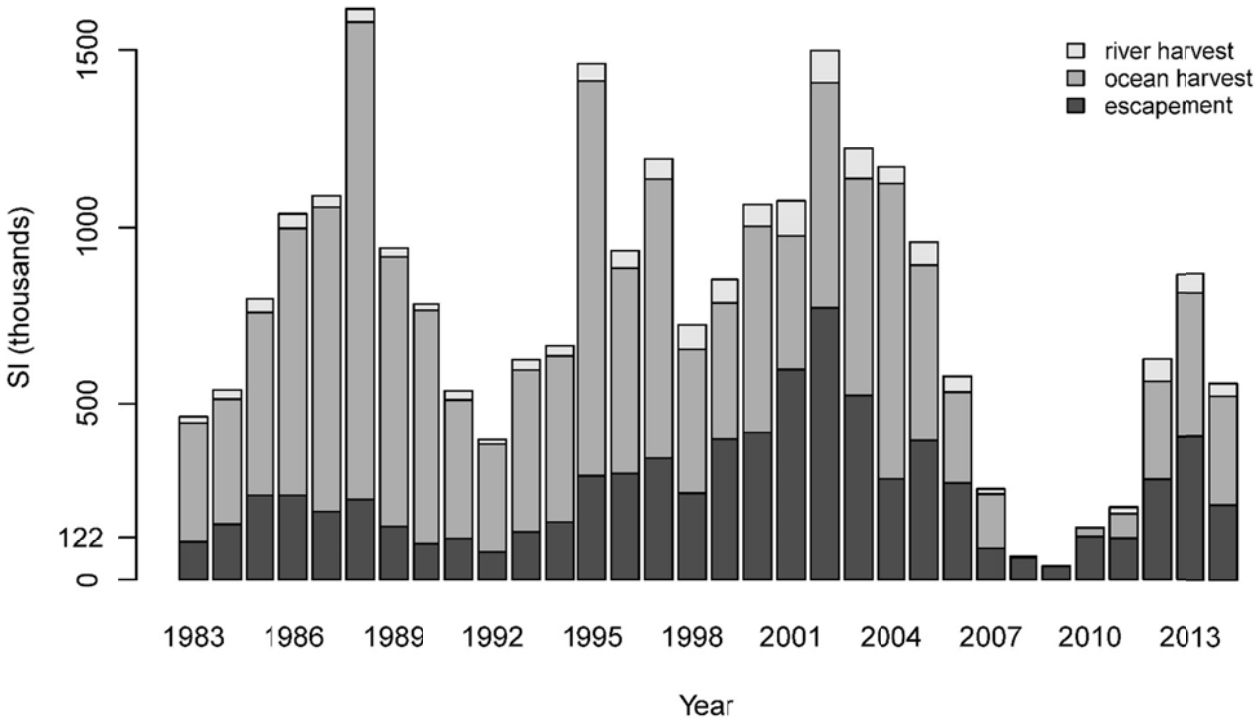

FIGURE II-1. The Sacramento Index (SI) and relative levels of its components. The Sacramento River fall Chinook S_{MSY} of 122,000 adult spawners is noted on the vertical axis.

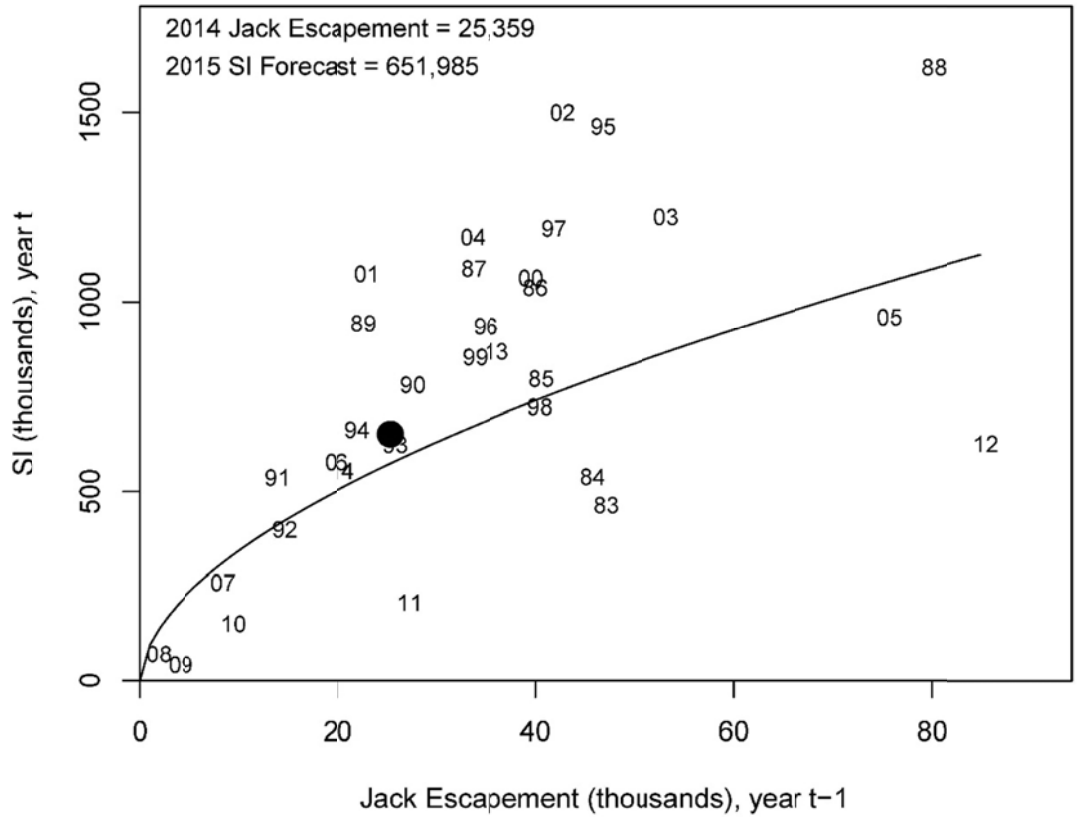

FIGURE II-2. Sacramento Index (SI) forecast based on log-log regression of the SI on jack escapement from the previous year, accounting for autocorrelated errors. The solid line represents the fitted model and the black dot denotes the SI forecast. Years shown are SI years.

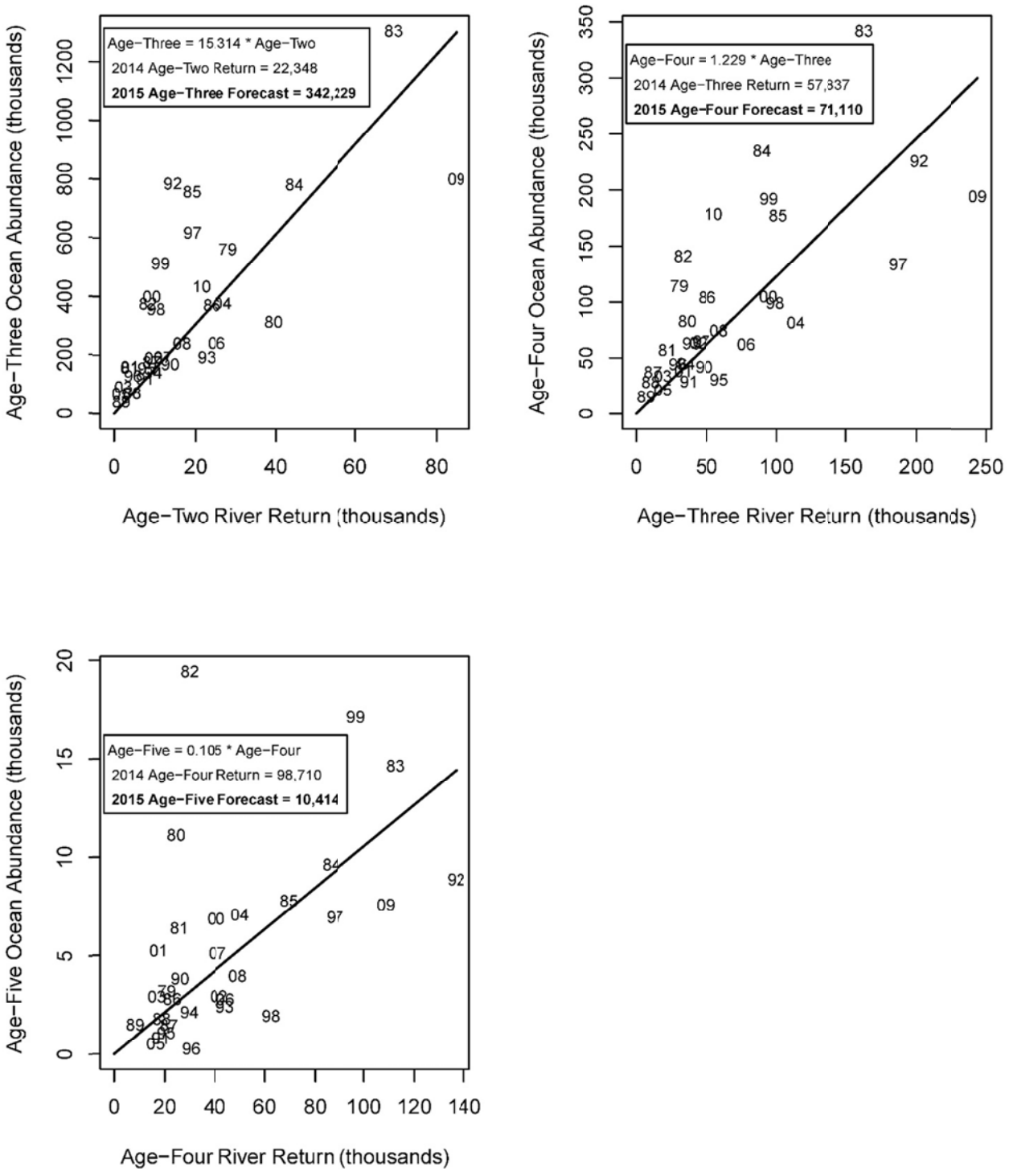

FIGURE II-3. Regression estimators for Klamath River fall Chinook ocean abundance (September 1) based on that year's river return of same cohort. Numbers in plots denote brood years.

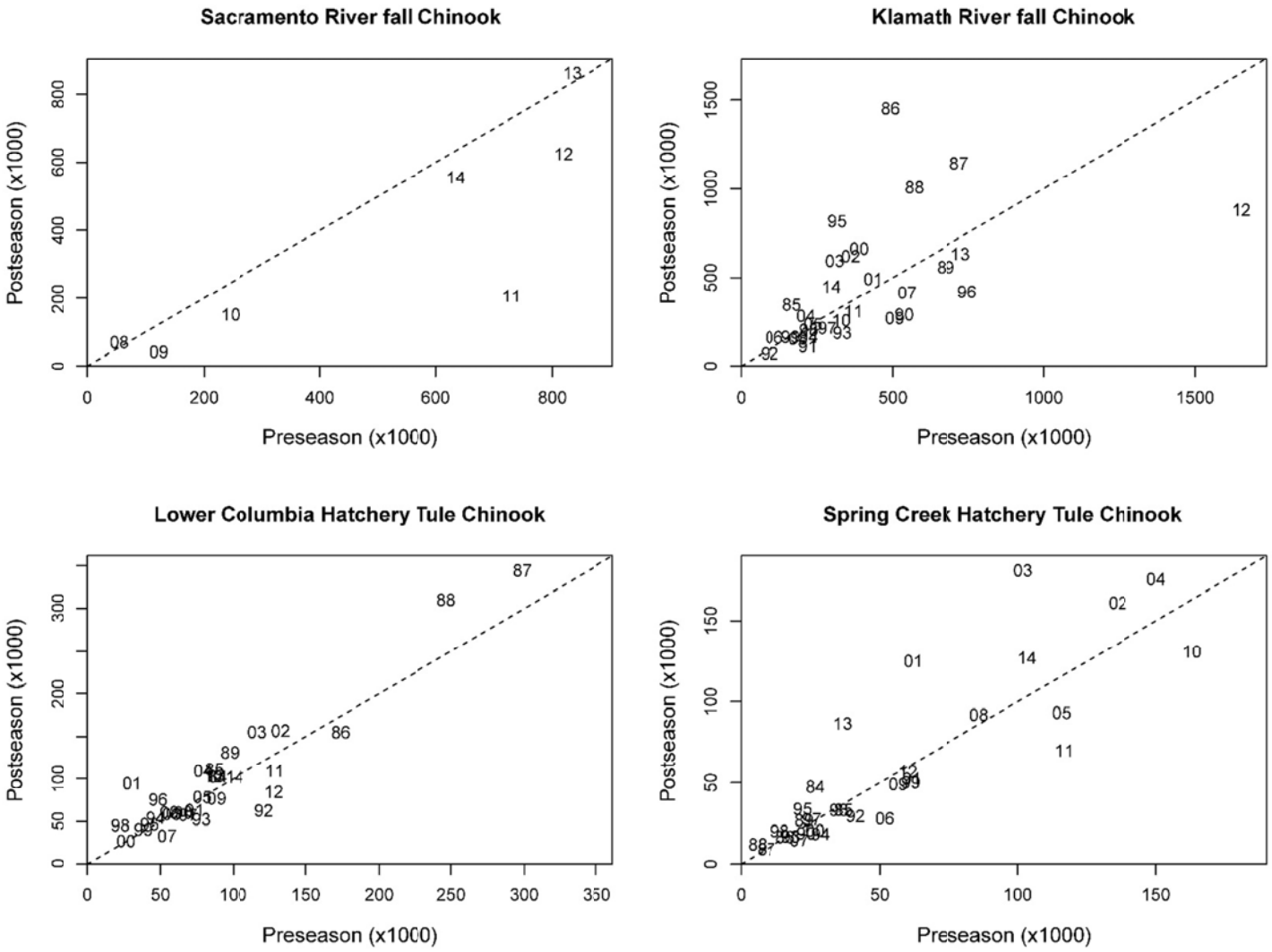

FIGURE II-4. Selected preseason vs. postseason forecasts for Chinook stocks with substantial contribution to Council area fisheries.

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CHAPTER III - COHO SALMON ASSESMENT

COLUMBIA RIVER AND OREGON/CALIFORNIA COAST COHO

OREGON PRODUCTION INDEX AREA

The majority of coho harvested in the Oregon Production Index (OPI) area originate from stocks produced in rivers located within the OPI area (Leadbetter Point, Washington, to the U.S./Mexico border). These stocks include hatchery and natural production from the Columbia River, Oregon Coast, and northern California, and are divided into the following components: (1) public hatchery (OPIH), (2) Oregon coastal natural (OCN), including river and lake components, (3) Lower Columbia natural (LCN), and (4) natural and hatchery stocks south of Cape Blanco, Oregon, which include the Rogue, Klamath, and Northern California coastal stocks. Direct comparisons of 2014 abundance forecasts with recent year preseason abundance forecasts and postseason estimates are reported in Table III-1.

Beginning in 2008, a new method was developed to estimate coho abundances for both the natural and hatchery components of the Columbia River and the Oregon coast. The traditional method of stock abundance estimation used only catch data from Leadbetter Point, Washington, to the U.S./Mexico border. The assumption prior to 2008 was that OPI stocks that were caught north of the OPI area were balanced by northern stocks that were caught inside the OPI area. This assumption was valid as long as fisheries north and south were balanced. However, in recent years, fisheries to the south have been more restrictive than those to the north, leading to underestimation of harvest of OPI area stocks. In addition, the estimation technique was not consistent with the methods used in Coho FRAM. The Mixed Stock Model (MSM) used for constructing the FRAM base period data was used to estimate the contribution of various coho stocks, including the OPI area stocks, to ocean fisheries and was based on CWT recoveries and associated tag rates. The MSM includes all fisheries that impact a particular stock, and therefore should provide a better overall accounting of total harvest and mortality of both Columbia River and Oregon coast coho stocks. The new run size estimates are based on the 1986-1997 base period and FRAM run reconstructions for more recent years. The Oregon Production Index Technical Team (OPITT) decided to use the MSM run reconstruction database for future accounting and forecasts. The MSM estimates were refined for use in 2009, with particular attention to the base period reconstruction for OCN coho. In 2010, the relationship between the MSM and previous time series was reconsidered. The changes in fishery effort patterns that resulted in biased harvest estimates began in the mid- to late-1990s, so the first few years of the MSM time series should be equivalent to the previous time series. This was used as justification to use the MSM data set as a continuation of the previous time series starting in 1986. In 2013, the OPI hatchery and OCN predictors used the longer, merged time series. This results in a higher level of statistical significance for the predictors and lower residuals in most recent years.

Hatchery Coho

OPI area public hatchery coho smolt production occurs primarily in Columbia River facilities and net pens. Several facilities located in Oregon coastal rivers and in the Klamath River Basin, California, collectively produce fewer coho. Salmon Trout Enhancement Hatchery Coho Smolt Program (STEP) program releases were discontinued after the 2004 brood. OPI area smolt releases since 1960 are reported by geographic area in Appendix C, TABLE C-1.

There have been no Oregon coastal private hatchery coho (PRIH) smolt releases since 1990.

Predictor Description

Prior to 2008, the OPIH stock predictor was a multiple linear regression with the following variables: (1) Columbia River jacks (Jack CR), (2) Oregon coastal and Klamath River Basin jacks (Jack OC), and (3) a

correction term for the proportion of delayed smolts released from Columbia River hatcheries (Jack CR * [SmD/SmCR]).

In 2008, the stock predictor was modified slightly from that used in previous years. Because of the shorter data set (1986-2007 vs. 1970-2007) and the near-total phase-out of coastal coho salmon hatcheries, the factor for Oregon and California jacks (Jack OC) was not statistically significant in the regression. A simplified model with all OPI jacks combined into one term (Jack OPI) was used, and all parameters were statistically significant. In 2011, the longer (1970-2010) time series was used with the simplified model.

The OPIH stock predictor is partitioned into Columbia River early and late stocks based on the proportion of the 2014 jack returns of each stock adjusted for stock-specific maturation rates. The coastal hatchery stock is partitioned into northern and southern coastal stock components. The northern OPIH coastal stock is comprised of hatchery production from the central Oregon Coast. The southern OPIH coastal stock is comprised of hatchery production from the Rogue River basin in southern Oregon and the Klamath and Trinity basins in northern California. The 2015 partition was based on the proportion of the smolt releases in 2014.

For the 2015 abundance forecast, the database includes 1970-2014 recruits and 1969-2013 jack returns (in thousands of fish). The model was:

$$OPIH(t) = a * Jack\ OPI(t-1)) + b * (Jack\ CR(t-1) * [SmD(t-1)/SmCR(t-1)])$$

Where:

a	=	18.44
b	=	25.64
adjusted r^2	=	0.98

The OPIH stock data set and a definition of the above terms are presented in Appendix C, TABLE C-2.

Predictor Performance

Recent year OPIH stock preseason abundance forecasts, partitioned by production area, stock, and as a total, are compared with postseason estimates in Table III-1. The 2014 preseason abundance prediction of 983,100 OPIH coho was 78 percent of the preliminary postseason estimate of 1,263,600 coho.

Since 1983, the OPIH predictor has performed well (Figure III-1a). The years with the highest variations were due principally to high interannual variability in the jack-to-adult ratios.

Stock Forecast and Status

Using the appropriate values from Appendix C, Table C-2, the OPIH abundance forecast for 2015 is 808,400 coho, 82 percent of the 2014 prediction and 64 percent of the preliminary 2014 postseason estimate.

Oregon Coastal Natural Coho

The OCN stock is composed of natural production north of Cape Blanco, Oregon from river (OCNR) and lake (OCNL) systems, which are forecasted independently.

ACLs are undefined in the FMP for ESA-listed stocks like OCN (and Southern Oregon/Northern California (SONCC) and Central California Coho (CCC)) coho, and are deferred to ESA consultation standards.

Predictor Description

Oregon Coastal Natural Rivers

Prior to 2010, a variety of methods were used to forecast OCNR coho abundance. Beginning in 2011, generalized additive models (GAMs) were used to relate OCNR recruitment to ocean environment indices. Nine variables were evaluated, ranging from indices of large-scale ocean patterns (e.g., Pacific Decadal Oscillation (PDO)) to local ecosystem variables (e.g., sea surface temperature at Charleston, OR). It was found that high explanatory power and promising forecast skill could be achieved when the mean May-July PDO averaged over the four years prior to the return year was used in combination with two other variables in a GAM. The multi-year average of the PDO, in essence, explains the lower frequency (multi-year) variability in recruitment, and can be viewed as a replacement of the Regime Index used previously. A final set of six models using six different environmental indices plus parent spawner abundance was chosen from the possible model combinations. When averaging the predictions from the set of models (the ensemble mean), a higher skill (in terms of variance explained or cross-validation) was achieved than by selecting any single model. Making multiple forecasts from a set of models also provides a range of possible outcomes that reflects, to some degree, the uncertainty in understanding how salmon productivity is driven by ocean conditions.

The GAM with 3 predictor variables can be expressed in the following general form:

$$\hat{Y} = f(X_1) + f(X_2) + f(X_3) + \varepsilon$$

Where $\hat{Y}$ is the prediction, X_1 through X_3 are the predictor variables, and ε is the deviation of $\hat{Y}$ from the observation Y. For the prediction, Y was the log-transformation of annual recruit abundance. The term f represents a smooth function, which in this case is a cubic spline.

The GAM predictor used for the 2015 forecast was:

Ensemble Mean of six forecasts based on environmental conditions and spawners.

Variables			Prediction	r^2	OCV[a/]
PDO	Spring Transition (Julian date; t-1)	Log Spawners (t-3)	215,400	0.75	0.66
PDO	Multivariate ENSO Index (Oct-Dec; t-1)	Upwelling (July-Sept; t-1)	195,100	0.73	0.65
PDO	Spring Transition (Julian date; t-1)	Multivariate ENSO Index (Oct-Dec; t-1)	186,000	0.73	0.66
PDO	Upwelling (July-Sept; t-1)	Sea Surface Temperature (May-Jul; t-1)	219,400	0.73	0.64
PDO	Sea Surface Height (Apr-June; t-1)	Upwelling (July-Sept; t-1)	170,800	0.75	0.66
PDO	Upwelling (Sept-Nov; t-1)	Sea Surface Temperature (Jan; t)	152,500	0.69	0.55
Ensemble Mean (90% prediction intervals)			188,400 (93,700-370,400)	0.76	0.68

a/ OCV – ordinary cross-validation score

The OCNR stock data set and a definition of the above terms are presented in Appendix C, Table C-4.

Oregon Coastal Natural Lakes

Since 1988, except for 2008, the abundance of OCNL index coho has been predicted using the most recent three-year average adult stock abundance. OCNL coho production occurs from three lake systems (Tenmile, Siltcoos, and Tahkenitch). Production from these systems has declined substantially from the levels observed during 1950-1973, but has steadily increased in recent years. Following the same reasoning used for the OCN Rivers predictor in 2008, OPITT chose to use the 2007 postseason abundance estimate of 10,000 coho for the 2008 preseason prediction instead of using the most recent three-year average.

For 2015, OPITT chose to use the most recent three-year average adult stock abundance, which predicts 18,200 coho.

Predictor Performance

Recent year OCN preseason abundance predictions are compared to postseason estimates in Table III-1. The 2014 preseason abundance prediction of 230,600 OCN coho was 57 percent of the preliminary postseason estimate of 403,300 coho.

Stock Forecasts and Status

The 2015 preseason prediction for OCN (river and lake systems combined) is 206,600 coho, 90 percent of the 2014 preseason prediction and 51 percent of the 2014 postseason estimate (Table III-1). The 2015 preseason prediction for OCNR and OCNL components are 188,400 and 18,200 coho, respectively.

Based on parent escapement levels and observed OPI smolt-to-jack survival for 2012 brood OPI smolts, the total allowable OCN coho exploitation rate for 2015 fisheries is no greater than 15.0 percent under the Salmon FMP (Amendment 13) and no greater than 15.0 percent under the matrix developed by the OCN Coho Work Group during their review of Amendment 13 (Table V-8; Appendix A, Tables A-2 and A-3, respectively). The work group recommendation was accepted by the Council as expert biological advice in November 2000.

In November 2013, the Council approved a methodology change for a new marine survival index for the OCN coho harvest matrix that uses biological and oceanographic indicators for preseason planning beginning in 2014[1]. Based on this methodology the marine survival index of 7.5 percent allows for a total allowable exploitation rate for 2015 fisheries that is no greater than 15.0 percent (Table V-8: Appendix Table A-4).

Lower Columbia River Natural

LCN coho consist of naturally produced coho mostly from Columbia River tributaries below Bonneville dam; however, coho produced in the upper Willamette are not part of the ESA-listed ESU and are not included in the LCN coho forecast. LCN coho were listed as endangered under the Oregon State ESA in 2002, and as threatened under the Federal ESA on June 28, 2005. ACLs are undefined in the FMP for ESA-listed stocks like LCN coho, and are deferred to ESA consultation standards.

Predictor Description

The 2015 prediction for the Clackamas River is based on a 3-cohort average (i.e. 2006, 2009, and 2012). The Clackamas ocean abundance forecast for 2015 is 4,900. The forecast for other Oregon lower Columbia natural (LCN) populations, including the Sandy River, are also the 3-cohort average of recent

[1] For additional information see the November 2013 PFMC Briefing Book, Agenda Item C.2.a, Attachment 1: Technical Revision to the OCN Coho Work Group Harvest Matrix.

year abundances based on spawning ground counts. The 2015 LCN coho abundance forecast for all Oregon areas combined is 8,000 coho.

The 2015 predictions for the Washington LCN coho populations are derived by combining estimates of the 2012 brood year natural smolt production based on watershed area and the marine survival rate of 4.2 percent. The 2015 adult abundance forecast for Washington LCN coho is 27,100 coho.

Predictor Performance

The LCN stock predictor methodology was developed in 2007. The preseason abundance compared to the postseason estimate is presented in Table III-1. The 2014 preseason abundance prediction of 33,100 LCN coho was 76 percent of the preliminary postseason estimate of 43,300 coho.

Stock Forecast and Status

The 2015 prediction for LCN coho is 35,100 coho (Table III-1). This abundance estimate includes both Oregon and Washington LCN components.

NMFS ESA guidance for harvest of LCN coho in marine and mainstem Columbia River fisheries in recent years has been based on the allowable marine exploitation rate in a matrix developed by ODFW, similar to the OCN matrix. This was based on parent escapement levels in the Sandy and Clackamas and observed OPI smolt-to-jack survival rates. In November 2014, the Council approved a new LCN matrix based on parent escapement levels for ten populations and the observed Columbia River OPI smolt-to-jack survival rate. This newly-adopted harvest matrix is under review by NMFS, but it is anticipated that it will be in place for preseason planning beginning in 2015[2]. Based on this methodology, the total allowable marine and mainstem Columbia River exploitation rate for LCN coho in 2015 fisheries would be no more than 23.0 percent.

Oregon Production Index Area Summary of 2015 Stock Forecasts

The 2015 combined OPI area stock abundance is predicted to be 1,015,000 coho, which is 84 percent of the 2014 preseason prediction of 1,213,700 coho and 61 percent of the 2014 preliminary postseason estimate of 1,666,900 coho. The historical OPI abundances are reported in Table III-2.

WASHINGTON COAST COHO

Washington coastal coho stocks include all natural and hatchery stocks originating in Washington coastal streams north of the Columbia River to the western Strait of Juan de Fuca (west of the Sekiu River). The stocks in this group most pertinent to ocean salmon fishery management are Willapa Bay (hatchery), Grays Harbor, Quinault (hatchery), Queets, Hoh, and Quillayute coho. These stocks contribute primarily to ocean fisheries off Washington and B.C.

A variety of preseason abundance estimators currently are employed for Washington coast and Puget Sound coho stocks, primarily based on smolt production and survival (Table I-2). These estimators are used to forecast preseason abundance of adult ocean (age-3) recruits.

A comparison was made of preseason ocean age-3 forecasts with postseason estimates derived from run reconstructions using FRAM ("Backwards" mode) to expand observed escapements to ocean abundance from CWT recovery data. It should be noted that forecast methodology has changed over time, and the overall trends and biases may not reflect the current methods.

[2] For additional information see the November 2014 PFMC Briefing Book, Agenda Item F.4.b, LRC Workgroup Report 1.

Washington Coast coho are exceptions to the ACL requirements of the MSA because they are managed under an international agreement (the PST); therefore, specification of ACLs is not necessary for these stocks.

Willapa Bay

Predictor Description

The hatchery forecast is based on a marine survival rate of 2.58 percent calculated from a regression using PDO (May-Nov) applied to the 2012 brood year smolts. The natural forecast is based on a calculated marine survival rate of 2.38 percent that was calculated from a regression of wild run-size to minimum PDO (Jan-July) and then applied to the 2012 escapement. It was then expanded to ocean age-3 recruits using an average of Southern U.S. (SUS) pre-terminal recoveries of coded-wire-tagged coho for brood years 2004-2013.

Predictor Performance

There was no information available to evaluate performance of predictors for Willapa coho stocks.

Stock Forecasts and Status

The 2015 Willapa Bay hatchery coho abundance forecast is 57,693 ocean recruits compared to a 2014 preseason forecast of 40,998. The 2015 natural coho forecast is 42,884 ocean recruits, compared to a 2014 preseason forecast of 58,883.

Grays Harbor

Preseason abundance forecasts are made for natural fish throughout the system and for hatchery fish returning to three freshwater rearing complexes and three saltwater net-pen sites. The forecasts include fish originating from numerous volunteer production projects.

Predictor Description

The forecast for the natural components (Humptulips and Chehalis Rivers) was based on the estimated total coho smolt production (Chehalis: 2,999,000) multiplied by the expected marine survival rate of 4.85. The Humptulips naturals uses the same marine survival rate, but uses the smolt production per square mile of watershed from the Clearwater (1,304 smolt/square mile) multiplied by the size of the Humptulips water shed (250 square miles) for a total of 326,000 smolts.

The forecast of Humptulips hatchery coho is based on 2012 smolt releases multiplied by the average return-per-release for four years (2010-2013), and then expanded to ocean age-3 abundance based on SUS CWT recoveries for 2012 return years. The forecast for Chehalis hatchery coho is based on the regression of terminal return per release or the minimum monthly mean PDO. Terminal recruits are expanded to ocean age-3 (OA3) based on SUS CWT recoveries from 2003-2013.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates for Grays Harbor natural coho derived from FRAM run reconstruction indicated no notable bias (Table III-3, Figure III-1).

Stock Forecasts and Status

The abundance forecast for Grays Harbor natural stock coho for 2015 is 142,554 ocean age-3 recruits. This ocean abundance results in an allowable exploitation rate of 65 percent under the FMP and classification of the stock as "abundant" under the 2002 PST Southern Coho Management Plan (Table III-5).

The forecast for hatchery stock ocean abundance is 46,574 ocean age-3 recruits.

OFL

The OFL is defined in terms of spawner escapement (S_{OFL}). For Grays Harbor coho MFMT = 0.65 and the OFL is S_{OFL} = 142,554 × (1-0.65) = 49,894. The preseason S_{OFL} value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

Quinault River

Predictor Description

The hatchery forecast was based on the average smolt to adult return rates estimated to ocean fisheries from 1984 to 2013, incorporating expansions for ocean tag recoveries for tags released from the Quinault National Fish Hatchery.

The natural forecast was based on the average smolt to adult return rates estimated to ocean fisheries from 1984 to 2013, incorporating expansions for ocean tag recoveries for tags released from the Quinault National Fish Hatchery.

Predictor Performance

There was no information available to evaluate performance of predictors for these stocks.

Stock Forecasts and Status

The 2015 forecast for Quinault natural coho is 44,187 age-3 ocean recruits, an increase of 43 percent from the 2014 forecast of 25,035.

The Quinault hatchery coho forecast is 24,865 age-3 ocean recruits, including 21,821 marked coho and 3,044 unmarked coho.

Queets River

Predictor Description

The natural coho forecast represents the estimated smolt production (235,523) multiplied by an expected survival rate of 3.93 percent to January age-3. The survival rate estimate is based on a model developed by Quinault Fisheries Department.

The hatchery forecast is based on the smolt releases from 2013 (598,346) multiplied by a three-year average (2011-2013) marine survival rate of 2.34 percent.

Approximately 85 percent of the fish released from the Salmon River facility were marked with an adipose fin clip.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from FRAM run reconstruction indicated no persistent tendency to under- or over- predict abundance. The 2013 forecast was much higher than the postseason estimate (Table III-3; Figure III-1).

Stock Forecasts and Status

The 2015 Queets natural coho forecast is 7,518 ocean recruits, a decrease compared to the 2014 forecast level of 10,330. This ocean abundance results in a maximum allowable exploitation rate of 22 percent under the FMP and classification of the stock abundance as "low" under the 2002 PST Southern Coho Management Plan (Table III-5).

The 2015 Queets hatchery (Salmon River) coho forecast is 24,865 ocean recruits, an increase of 37 percent compared to the 2014 forecast of 15,699.

OFL

The OFL is defined in terms of spawner escapement (S_{OFL}). For Queets River coho, MFMT = 0.65, and the OFL is S_{OFL} = 7,518 × (1-0.65) = 2,631. The preseason S_{OFL} value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

Hoh River

Predictor Description

The natural coho forecast is based on estimated average smolt production per square mile of watershed from the Clearwater tributary to the Queets River during 31 years of trapping (527.91 smolts/square mile), multiplied by the size of the Hoh watershed (299 square miles), for a total of 157,844 smolts. The total natural smolt production estimate was then multiplied by an expected marine survival rate of 4.0 percent. This is the mean of two estimates for wild coastal coho populations, the Queets River at 3.93 percent from Quinault Fisheries Department and Bingham Creek wild coho, and the Strait Juan de Fuca at 3.96 percent. Both of these estimates are generated from databases of smolt output and subsequent recruits and use correlations with environmental indicators. The Strait estimate also includes an indicator of jack returns to the Lower Elwha hatchery.

The 4.0 percent estimate seems to be a reasonable estimator for the Hoh system wild coho, and when coupled with an average freshwater production, yields a runsize forecast that is comparable to last year's actual return.

No hatchery production is projected for the Hoh system for 2015.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from FRAM run reconstruction indicated a tendency to under-predict actual run-size (Table III-3; Figure III-1).

Stock Forecasts and Status

The 2015 Hoh River natural coho forecast is 5,125 ocean recruits, a decrease compared to the 2014 forecast of 8,939. This ocean abundance results in a maximum allowable exploitation rate of 61 percent under the FMP and classification of the stock as "moderate" under the 2002 PST Southern Coho Management Plan (Table III-5).

OFL

The OFL is defined in terms of spawner escapement (S_{OFL}). For Hoh River coho, MFMT = 0.61, and the OFL is S_{OFL} = 5,125 × (1-0.65) = 1,794. The preseason S_{OFL} value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

Quillayute River

Quillayute River coho consist of a summer run that is managed primarily for hatchery production, and a fall run that is managed primarily for natural production. Quillayute River coho have both natural and hatchery components to both runs.

Predictor Description

The Clearwater/Queets was estimated at 73,907 coho smolts (Quinault Fisheries Department), which is 1.67 times its average production during the years the Bogachiel was trapped (1987, 88, and 90), and 1.212 times its average production during the years the Dickey was trapped (1992 – 94). The average smolt production of the Quillayute System excluding the Dickey was estimated at 217,257, and the Dickey production is estimated at 88,344 smolts multiplied by 1.212, yielding an additional 107,037 smolts. The total production for the system is estimated at 360,567 smolts. Separating these into summer and fall coho smolts by the relative number of spawners in brood year 2012 yields estimates of 37,174 wild summer coho smolts and 323,393 wild fall coho smolts. Wild summer coho spawning has been documented to be temporally and spatially isolated from spawning wild fall coho.

Summer Coho

The summer natural coho forecast is based on the estimated total summer coho smolt production (37,174) and a projected ocean survival rate of 4.0 percent. This is a lower ocean survival rate than the 4.4 percent used in 2014.

An examination of the return rates of both hatchery releases and natural smolts indicates that hatchery return rates are 1.5 percent below natural returns. Thus, for the hatchery component, an ocean survival rate of 2.5 percent was selected. The survival rate of 2.5 percent was multiplied by a release of 108,423 smolts.

Fall Coho

The forecast for the natural component was based on the estimated total fall coho smolt production (323,393) multiplied by an expected marine survival rate of 4.0 percent, which was the same as used for the summer natural returns.

The fall hatchery production forecast was based on the same prediction of marine survival (2.5 percent) used for the summer hatchery coho forecast, multiplied by a release of 394,802 smolts.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates for fall natural coho derived from FRAM run reconstruction indicated no notable bias (Table III-3; Figure III-1). The 2013 preseason forecast exceeded the postseason estimate by a factor of 1.10.

Stock Forecasts and Status

The 2015 Quillayute River summer natural and hatchery coho forecasts are 1,207 and 2,200 ocean recruits, respectively. Approximately 100 percent of the hatchery smolts were marked with an adipose fin clip. The 2015 forecast abundances of natural and hatchery summer coho are lower than the 2014 forecasts.

The 2015 Quillayute River fall natural and hatchery coho forecasts are 10,500 and 8,011 ocean recruits, respectively. The 2015 forecast abundance of natural Quillayute fall coho and the hatchery forecast are lower than their respective 2014 forecasts. The hatchery smolts were marked as follows: 234,111 with

adipose fin-clip only; 78,734 with adipose fin-clip and CWT; 79,799 with CWT only, and 2,158 without adipose fin-clip or CWT.

The ocean abundance forecast for Quillayute fall natural coho results in classification of the stock abundance as "low" under the 2002 PST Southern Coho Management Plan (Table III-5).

North Washington Coast Independent Tributaries

Predictor Description

Production from several smaller rivers and streams along the North Washington Coast (Waatch River, Sooes River, Ozette River, Goodman Creek, Mosquito Creek, Cedar Creek, Kalaloch Creek, Raft River, Camp Creek, Duck Creek, Moclips River, Joe Creek, Copalis River, and Conner Creek), which flow directly into the Pacific Ocean, is forecast as an aggregate. Generally, stock assessment programs on these systems are minimal.

The 2015 forecast of natural coho production for these independent streams is based on a prediction of 475 smolts per square mile of watershed drainage, 424 square miles of watershed, resulting in 201,400 smolts multiplied by an expected marine survival rate of 5.8 percent. This rate was the average of the jack-based and the PDO models.

The hatchery forecast is based on two linear regression models using the natural log of the brood year jack return to the Makah National Fish Hatchery and the North Pacific Gyre Oscillation index for January through March as predictors. The predicted marine survival of 4.74 percent for the brood year 2012 was multiplied by brood year smolt release (308,559) from the Makah National Fish Hatchery.

Predictor Performance

There was no information available to evaluate performance of predictors for these stocks.

Stock Forecasts and Status

The 2015 forecast of natural coho production for these independent streams is 11,658 age-3 ocean recruits. The hatchery forecast is 11,865 age-3 ocean recruits, and 100 percent of the smolts released were marked with an adipose fin clip.

PUGET SOUND COHO STOCKS

Puget Sound coho salmon stocks include natural and hatchery stocks originating from U.S. tributaries in Puget Sound and the Strait of Juan de Fuca. The primary stocks in this group that are most pertinent to ocean salmon fishery management are Strait of Juan de Fuca, Hood Canal, Skagit, Stillaguamish, Snohomish, and South Puget Sound (hatchery) coho. These stocks contribute primarily to ocean fisheries off Washington and B.C.

A variety of preseason abundance estimators currently are employed for Puget Sound coho stocks, primarily based on smolt production and survival (Table I-2). These estimators are used to forecast preseason abundance of adult ocean age-3 (OA3) recruits. Forecasts for natural Puget Sound coho stocks were generally derived by measured or predicted smolt production from each major watershed or region, multiplied by stock-specific marine survival rate predictions based on a jack return model from the WDFW Big Beef Creek Research Station in Hood Canal, natural coho CWT tagging programs at Baker Lake (Skagit River basin) and South Fork Skykomish River, adult recruits/smolt data generated from the WDFW Deschutes River Research Station, or other information. Puget Sound hatchery forecasts were generally the product of 2012 brood year (BY) smolt releases from each facility, and a predicted marine

survival rate for each program. Hatchery marine survival rates were typically based on recent year average survival rates derived from CWT recovery information and/or run reconstructions.

The 2015 total hatchery and natural coho ocean recruit forecast for the Puget Sound region is 891,900, compared to a 2014 forecast of 859,800. The hatchery coho forecast is 423,900 compared to the 2014 forecast of 377,300, and the natural coho forecast for 2015 of 467,900 is similar to the 2014 forecast of 473,800.

A comparison was made of preseason ocean age-3 forecasts with postseason estimates derived from run reconstructions using FRAM ("Backwards" mode). This method expands observed escapements and actual catch to produce a FRAM estimate of post-season ocean abundance. This post-season FRAM estimate is dependent upon Base Period (1986-1992 fishing years) CWT recovery data. It should be noted that forecast methodology has changed over time, and the overall trends and biases may not reflect the current methods.

Puget Sound coho are exceptions to the ACL requirements of the MSA because they are managed under an international agreement (the PST); therefore, specification of ACLs is not necessary for these stocks.

Strait of Juan de Fuca

Predictor Description

As in past years, the natural and hatchery coho forecasts include both Eastern and Western Strait of Juan de Fuca drainages. This year, a new method was used to directly predict the OA3 abundance of the JDF natural stock. This forecast is based upon the relationships between historic OA3 stock abundance and ocean variables. The weighted mean of OA3 predictions from two regression models produced the final forecast. The ocean variables utilized were:

- Neah Bay Sea surface temperature April-August
- Copepod species-richness
- The natural log (*ln*) of the Elwha hatchery jack return rates

The hatchery forecasts were based on applying hatchery-specific marine survival rate predictions to the 2012 BY smolt releases for each hatchery. The marine survival rate predictions for the hatchery stocks were based on averages of estimated return rates of adults.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from FRAM run reconstruction indicated a tendency to under-predict actual run-size prior to 2013; the 2013 data showed the reverse (Table III-4; Figure III-1b). The 2013 preseason forecast overestimated the postseason estimate by a factor of 1.29.

Stock Forecasts and Status

The 2015 forecasts for Strait of Juan de Fuca natural and hatchery coho age-3 ocean recruits are 11,100 and 11,100, respectively.

The preseason forecast of 11,131 age-3 ocean recruits places Strait of Juan de Fuca natural coho in the Critical abundance-based status category, which results in an allowable total exploitation rate of no more than 20 percent under both the Council-adopted exploitation rate matrix (Appendix A, Table A-5) and the 2002 PST Southern Coho Management Plan (Table III-5). Under the PST Coho Management Plan, the southern U.S. share of the allowable exploitation rate of 20 percent could be as low as 7 percent, but may increase if Canada adopts fisheries resulting in less that its allowable share. In recent years, when Canada

has managed their fisheries to minimize impacts on upper Fraser coho, their exploitation rate on Strait of Juan de Fuca coho has been less than 2.5 percent.

OFL

The OFL is defined in terms of spawner escapement (S_{OFL}). For Strait of Juan de Fuca coho MFMT = 0.60, and the OFL is S_{OFL} = 11,131 × (1-0.60) = 4,452. The preseason S_{OFL} value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

Nooksack-Samish

Predictor Description

The natural coho forecast is the product of projected natural smolt production from each stream basin in the region, multiplied by stock-specific marine survival rate expectations.

The hatchery forecasts are based on long-term median marine survival rate expectations for Lummi Bay Hatchery or Skookum Hatchery multiplied by the number of smolts released.

Predictor Performance

There was no information available to evaluate performance of predictors for Nooksack-Samish coho stocks.

Stock Forecasts and Status

The 2015 forecasts for Nooksack-Samish natural and hatchery coho ocean abundance were unavailable at time of print.

Skagit

Predictor Description

The natural coho forecast is the product of measured smolt production from the Skagit basin multiplied by a marine survival rate expectation of 7.05 percent. This natural coho marine survival rate was based upon the NOAA ecosystem indicator data, specifically the ONI January-June.

The hatchery forecasts are based on Marblemount Hatchery CWT recoveries. The last seven even-year brood years produced an average marine survival rate of 5.67 percent; this was multiplied by the total number of smolts released from all regional hatcheries.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from FRAM run reconstruction indicated a tendency to over-predict actual run size, especially early in the time series (Table III-4; Figure III-1b).

Stock Forecasts and Status

The 2015 forecasts for Skagit River natural and hatchery coho ocean recruits are 121,426 and 19,477 respectively.

The preseason forecast of 121,426 age-3 ocean recruits places Skagit natural coho in the Normal abundance based status category, which results in an allowable total exploitation rate of no more than 60 percent under both the Council adopted exploitation rate matrix (Appendix A, Table A-5) and the 2002 PST Southern Coho Management Plan (Table III-5).

OFL

The OFL is defined in terms of spawner escapement (S_{OFL}). For Skagit River coho, MFMT = 0.60 and the OFL is S_{OFL} = 121,426 × (1-0.60) = 48,570. The preseason S_{OFL} value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

Stillaguamish

Predictor Description

The natural coho forecast was based on the regression of adult terminal returns on adjusted smolt trap catch per unit effort (CPUE), for brood years 1999-2011. To capture the variability of marine survival, the CPUE was adjusted with South Fork Skykomish River natural coho marine survival observations. The resulting terminal run-size estimate was then expanded by a pre-terminal Puget Sound exploitation rate.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from FRAM run reconstruction in recent years indicated no persistent tendency to under- or over-predict abundance (Table III-4; Figure III-1b). The 2013 preseason forecast under-predicted the postseason estimate by a factor of 0.37.

Stock Forecasts and Status

The preseason forecast of 31,263 age-3 ocean recruits places Stillaguamish natural coho in the Normal abundance based status category, which results in an allowable total exploitation rate of no more than 50 percent under both the Council-adopted exploitation rate matrix (Appendix A, Table A-5) and the 2002 PST Southern Coho Management Plan (Table III-5).

OFL

The OFL is defined in terms of spawner escapement (S_{OFL}). For Stillaguamish coho, MFMT = 0.50 and the OFL is S_{OFL} = 31,263 × (1-0.50) = 15,632. The preseason S_{OFL} value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

Snohomish

Predictor Description

The natural coho forecast used the estimated 2012 BY smolt production multiplied by a 5 percent marine survival rate expectation. The hatchery forecasts were based on BY 2012 releases multiplied by a 5 percent marine survival rate.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from FRAM run reconstruction indicated no persistent tendency to under- or over-predict abundance (Table III-4; Figure III-1b). The 2013 forecast was lower than the postseason estimate by a factor of 0.87.

Stock Forecasts and Status

The 2015 forecast for Snohomish River natural coho ocean recruits is 151,549. The Snohomish regional hatchery coho forecast is 53,871.

The preseason forecast of 151,549 age-3 ocean recruits places Snohomish natural coho in the Normal abundance-based status category, which results in an allowable total exploitation rate of no more than 60

percent under the Council-adopted exploitation rate matrix (Appendix A, Table A-5) and 60 percent with an abundant status under the 2002 PST Southern Coho Management Plan (Table III-5).

OFL

The OFL is defined in terms of spawner escapement (S_{OFL}). For Snohomish coho, MFMT = 0.60 and the OFL is S_{OFL} = 151,549 × (1-0.60) = 60,619. The preseason S_{OFL} value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

Hood Canal

Predictor Description

The natural coho forecast is based on a regression of CWT natural Big Beef Creek jacks on Hood Canal December age-2 recruits, using brood years 1983-1998 and 2002-2010. The 1999-2001 broods were excluded because of the unusually high recruit-per-tagged jack ratio, which is not expected to occur this year.

The hatchery coho forecasts are based on average cohort reconstruction-based December age-2 recruits/smolt for the six most recent available broods from each facility, applied to the 2012 brood smolt releases for each facility. The December age-2 marine survival rates used for these forecasts were 11.1 percent for George Adams Hatchery, 4.9 percent for Port Gamble Net Pens, 13.2 percent for the Quilcene National Fish Hatchery, and 3.0 percent for the Quilcene Bay Net Pens.

Predictor Performance

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from FRAM run reconstruction indicated no persistent tendency to under- or over- predict abundance in recent years. The 2013 forecast was slightly lower than the postseason estimate by a factor of 0.97 (Table III-4; Figure III-1b).

Stock Forecasts and Status

Converted to ocean age-3 forecasts, the Hood Canal region natural and hatchery coho ocean recruits are 61,453 and 108,407, respectively.

The preseason forecast of 61,453 age-3 ocean recruits places Hood Canal natural coho in the Normal abundance based status category, which results in an allowable total exploitation rate of no more than 65 percent under both the Council adopted exploitation rate matrix (Appendix A, Table A-5) and the 2002 PST Southern Coho Management Plan (Table III-5).

OFL

The OFL is defined in terms of spawner escapement (S_{OFL}). For Hood Canal coho MFMT = 0.65, and the OFL is S_{OFL} = 61,453 × (1-0.65) = 21,509. The preseason S_{OFL} value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

South Sound

Predictor Description

The natural coho forecast is the product of projected smolt production from each of the stream basins in the region multiplied by a marine survival rate expectation for natural coho in the region. The upper South Sound natural stocks' marine survival rate of 2.53 percent was based upon a 5-year average return

rate of Lake Washington natural smolts. The deep South Sound stocks' marine survival prediction of 6.80 percent came from a different years average for Lake Washington natural smolts.

Almost all the hatchery coho forecasts used an average from either Soos Creek Hatchery (4.8 percent) for the years 2008-2010 or Peale Pass net pens (2.20 percent) for the years 2009-2010.

Stock Forecasts and Status

The 2015 preseason forecast of age-3 ocean recruits for South Sound region natural and hatchery coho are 63,017 and 180,205 respectively.

STOCK STATUS DETERMINATION UPDATES

No stocks were classified as overfished, or met the criteria for approaching an overfished condition in 2015 (Table V-4). Status determination criteria for Willapa Bay coho have been identified. The MSST is 8,600 and the MFMT is 74 percent. The Annual Catch Limit is 71 percent and the Conservation Objective is 17,200 natural area spawners.

SELECTIVE FISHERY CONSIDERATIONS FOR COHO

As the region has moved forward with mass marking of hatchery coho salmon stocks, selective fishing options have become an important consideration for fishery managers. Projected coho mark rates in Canadian, Puget Sound, and north Washington Coast fisheries are slightly lower than 2014 projections. Table III-6 summarizes projected 2015 mark rates for coho fisheries by month from Southern British Columbia, Canada to the Oregon Coast, based on preseason abundance forecasts.

TABLE III-1. Preliminary preseason and postseason coho stock abundance estimates for Oregon production index area stocks in thousands of fish. (Page 1 of 3)

Stock	Year	Preseason	Postseason[a/]	Preseason/Postseason[a/]
Oregon Production Index Area Hatchery Total[b/]	1996	309.2	182.6	1.69
	1997	376.1	215.3	1.75
	1998	118.4	203.6	0.58
	1999	559.2	319.6	1.75
	2000	671.4	677.1	0.99
	2001	1,707.6	1,454.2	1.17
	2002	361.7	660.1	0.55
	2003	863.1	952.5	0.91
	2004	623.9	634.6	0.98
	2005	389.9	443.1	0.88
	2006	398.8	440.6	0.91
	2007	593.6	476.5	1.25
	2008	216.1	565.4	0.38
	2009	1,073.1	1,066.2	1.01
	2010	408.0	551.3	0.74
	2011	375.1	442.3	0.85
	2012	341.7	182.3	1.87
	2013	525.4	316.9	1.66
	2014	983.1	1,263.6	0.78
	2015	808.4	-	-
Columbia River Early	1996	142.2	98.0	1.45
	1997	206.9	129.8	1.59
	1998	63.8	126.4	0.50
	1999	325.5	174.9	1.86
	2000	326.3	378.0	0.86
	2001	1,036.5	873.0	1.19
	2002	161.6	324.7	0.50
	2003	440.0	645.7	0.68
	2004	313.6	389.0	0.81
	2005	284.6	282.7	1.01
	2006	245.8	251.4	0.98
	2007	424.9	291.0	1.46
	2008	110.3	333.9	0.33
	2009	672.7	681.4	0.99
	2010	245.3	274.3	0.89
	2011	216.0	288.5	0.75
	2012	229.8	114.7	2.00
	2013	331.6	190.8	1.74
	2014	526.6	760.5	0.69
	2015	515.2	-	-
Columbia River Late	1996	114.4	30.8	3.71
	1997	86.5	53.7	1.61
	1998	24.9	47.3	0.53
	1999	140.9	120.7	1.17
	2000	278.0	260.1	1.07
	2001	491.8	488.3	1.01
	2002	143.5	271.8	0.53
	2003	377.9	248.0	1.52
	2004	274.7	203.0	1.35
	2005	78.0	111.6	0.70
	2006	113.8	156.3	0.73
	2007	139.5	171.0	0.82
	2008	86.4	207.6	0.42
	2009	369.7	374.1	0.99
	2010	144.2	263.6	0.55
	2011	146.5	141.2	1.04
	2012	87.4	55.6	1.57
	2013	169.5	110.7	1.53
	2014	437.5	480.3	0.91
	2015	261.9	-	-

TABLE III-1. Preliminary preseason and postseason coho stock abundance estimates for Oregon production index area stocks in thousands of fish. (Page 2 of 3)

Stock	Year	Preseason	Postseason[a/]	Preseason/Postseason[a/]
Oregon Coast North of Cape Blanco	1996	38.5	28.0	1.38
	1997	60.4	19.0	3.18
	1998	21.6	19.7	1.10
	1999	59.4	14.4	4.13
	2000	48.5	23.4	2.07
	2001	127.3	46.9	2.71
	2002	36.6	41.6	0.88
	2003	29.3	34.5	0.85
	2004	16.6	21.7	0.76
	2005	11.5	10.7	1.07
	2006	8.6	7.9	1.09
	2007	7.0	1.3	5.38
	2008	1.7	7.1	0.24
	2009	7.3	7.5	0.97
	2010	4.4	8.6	0.51
	2011	3.6	3.6	1.00
	2012	6.4	3.2	2.00
	2013	5.6	7.9	0.71
	2014	4.8	19.4	0.25
	2015	6.9	-	-
Oregon and California Coast South of Cape Blanco				
	1996	14.2	25.8	0.55
	1997	22.3	12.8	1.74
	1998	8.1	10.2	0.79
	1999	33.4	9.6	3.48
	2000	18.6	15.6	1.19
	2001	52.0	46.0	1.13
	2002	20.0	22.0	0.91
	2003	15.9	24.3	0.65
	2004	19.0	29.9	0.64
	2005	15.8	38.1	0.41
	2006	30.6	25.0	1.22
	2007	22.2	13.2	1.68
	2008	17.7	16.8	1.05
	2009	23.4	3.1	7.55
	2010	14.1	4.8	2.94
	2011	9.0	9.0	1.00
	2012	18.1	8.8	2.06
	2013	18.7	7.5	2.49
	2014	14.2	3.8	3.74
	2015	24.4	-	-
Lower Columbia River Natural	2007	21.5	19.4	1.11
	2008	13.4	27.2	0.49
	2009	32.7	40.4	0.81
	2010	15.1	30.8	0.49
	2011	22.7	23.4	0.97
	2012	30.1	12.9	2.33
	2013	46.5	17.8	2.61
	2014	33.1	43.3	0.76
	2015	35.1	-	-

TABLE III-1. Preliminary preseason and postseason coho stock abundance estimates for Oregon production index area stocks in thousands of fish. (Page 3 of 3)

Stock	Year	Preseason	Postseason[a/]	Preseason/Postseason[a/]
Oregon Coast Natural	1996	63.2	86.1	0.73
(Rivers and Lakes)	1997	86.4	27.8	3.11
	1998	47.2	29.2	1.62
	1999	60.7	51.9	1.17
	2000	55.9	69.0	0.81
	2001	50.1	163.2	0.31
	2002	71.8	304.5	0.24
	2003	117.9	278.8	0.42
	2004	150.9	197.0	0.77
	2005	152.0	150.1	1.01
	2006	60.8	116.4	0.52
	2007	255.4	60.0	4.26
	2008	60.0	170.9	0.35
	2009	211.6	257.0	0.82
	2010	148.0	266.8	0.55
	2011	249.4	311.6	0.80
	2012	291.0	123.8	2.35
	2013	191.0	128.4	1.49
	2014	230.6	403.3	0.57
	2015	206.6	-	-
Salmon Trout Enhancement Program[c/]	1996	0.4	1.2	0.33
	1997	1.3	0.3	4.33
	1998	0.2	0.3	0.67
	1999	0.7	0.4	1.75
	2000	0.6	0.5	1.20
	2001	1.0	1.4	0.71
	2002	0.6	3.0	0.20
	2003	3.6	3.6	1.00
	2004	3.1	1.0	3.10
	2005	1.0	0.4	2.50
	2006	0.6	0.1	6.00
	2007	0.2	0.0	-

a/ Postseason estimates are based on preliminary data, and not all stocks have been updated with final estimates.
b/ LCN abundance is included as a subset of early/late hatchery abundance beginning in 2007. STEP estimates not included
c/ Program was discontinued in 2005.

TABLE III-2. Oregon production index (OPI) area coho harvest impacts, spawning, abundance, and exploitation rate estimates in thousands of fish.[a/]

Year or Avg.	Ocean Fisheries[b/]		Oregon and California Coastal Returns			Columbia River Returns	Abundance[e/]	Ocean Exploitation Rate Based on OPI Abundance[f/]
	Troll	Sport	Hatcheries and Freshwater Harvest[c/]	OCN Spawners[d/]	Private Hatcheries			
1970-1975	1,629.6	558.4	45.8	55.2	-	460.4	2,749.3	0.80
1976-1980	1,253.6	555.0	31.2	31.1	26.1	263.3	2,154.2	0.85
1981-1985	451.2	274.0	37.2	56.0	176.8	305.3	1,328.6	0.63
1986	638.9	320.6	79.3	70.0	332.0	1578.1	3,195.4	0.34
1987	468.2	296.2	45.1	30.1	453.7	324.2	1,272.4	0.93
1988	844.7	297.2	61.1	56.8	119.3	686.1	1,918.9	0.63
1989	645.1	425.5	61.1	46.4	116.1	728.7	2,176.5	0.52
1990	275.9	357.1	28.7	22.5	46.9	208.0	987.4	0.67
1991	448.4	469.9	77.8	38.1	35.6	981.5	2,040.4	0.46
1992	67.4	256.5	51.0	44.2	-	225.4	629.6	0.51
1993	13.1	140.8	38.6	56.1	-	117.9	315.9	0.49
1994	2.7	3.0	28.2	48.5	-	173.4	267.5	0.02
1995	5.4	43.5	37.5	57.3	-	77.4	204.1	0.24
1996	7.0	31.8	45.7	79.3	-	117.1	260.3	0.15
1997	5.5	22.4	26.9	31.6	-	156.4	230.5	0.12
1998	3.5	12.8	29.4	34.3	-	175.9	270.8	0.06
1999	3.6	36.5	22.6	51.2	-	289.1	432.0	0.09
2000	25.2	74.6	33.2	81.1	-	558.3	762.4	0.13
2001	38.1	216.8	75.8	185.2	-	1128.3	1,673.2	0.15
2002	15.0	118.7	54.0	269.0	-	535.8	972.2	0.14
2003	28.8	252.4	45.1	235.3	-	713.2	1,266.9	0.22
2004	26.2	159.3	38.1	197.3	-	463.5	904.5	0.21
2005	10.5	58.2	42.8	164.6	-	354.7	629.9	0.11
2006	4.5	47.5	29.6	132.7	-	409.7	674.1	0.08
2007	26.2	128.5	10.9	71.4	-	349.0	631.3	0.25
2008	0.6	26.4	15.9	180.1	-	520.5	769.8	0.04
2009	27.7	201.2	16.6	265.3	-	759.5	1,341.3	0.17
2010	5.8	48.8	19.5	287.1	-	470.8	848.4	0.06
2011	4.2	54.7	20.0	360.8	-	383.2	836.4	0.07
2012	4.7	45.5	18.5	104.6	-	143.9	311.3	0.16
2013	8.4	48.3	26.5	135.3	-	242.1	473.6	0.12
2014[g/]	35.6	197.4	41.3	347.4	-	966.7	1,673.3	0.14

a/ The OPI area includes ocean and inside harvest impacts and escapement to streams and lakes south of Leadbetter Pt., Washington.

b/ Incl. est. nonretention mort.: troll: release mort.(1982-present) and drop-off mort.(all yrs.); sport --release mort.(1994-present) and drop-off mort.(all yrs.).

c/ Includes STEP smolt releases through the 2007 return year, after which the program was terminated.

d/ Includes Rogue River.

e/ FRAM post-season runs used after 1985 and includes OPI origin stock catches in all fisheries.

f/ Private hatchery stocks are excluded in calculating the OPI area stock aggregate ocean exploitation rate index.

g/ Preliminary.

TABLE III-3. Preseason forecasts and postseason estimates of ocean escapements for selected Washington coastal adult natural coho stocks in thousands of fish.

Year	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season	Preseason Forecast	Postseason Return	Pre/Post-season
	Quillayute River Fall			**Hoh River**			**Queets River**			**Grays Harbor**[a/]		
1986	11.6	36.3	0.32	4.1	18.1	0.23	9.8	24.6	0.40	93.8	123.3	0.76
1987	27.3	33.8	0.81	13.0	14.2	0.91	20.6	15.9	1.29	218.6	66.3	3.30
1988	23.0	13.5	1.70	4.4	19.4	0.23	10.3	17.9	0.57	55.7	96.8	0.58
1989	28.2	18.8	1.50	11.0	9.2	1.19	13.6	12.0	1.13	82.3	156.5	0.53
1990	45.5	11.7	3.91	8.1	8.7	0.93	13.6	27.3	0.50	81.2	96.1	0.84
1991	16.3	26.4	0.62	6.3	11.6	0.55	16.1	26.6	0.60	244.6	139.1	1.76
1992	22.8	15.8	1.44	8.9	15.4	0.58	11.7	17.7	0.66	60.4	58.0	1.04
1993	13.2	10.5	1.26	8.3	3.4	2.47	12.9	12.7	1.01	144-153	58.5	2.46-2.62
1994	11.6	8.4	1.38	5.0	2.2	2.31	6.9	2.5	2.78	53.8-60.2	14.0	3.84-4.30
1995	13.1	19.8	0.66	6.8	9.7	0.70	12.1	10.7	1.13	103.4	70.2	1.47
1996	13.0	20.3	0.64	4.2	7.7	0.54	8.3	22.6	0.37	121.4	89.7	1.35
1997	8.9	5.8	1.53	2.8	4.1	0.68	4.3	2.2	1.92	26.1	20.2	1.29
1998	8.0	17.4	0.46	3.4	5.6	0.61	4.2	6.3	0.66	30.1	46.4	0.65
1999	14.5	16.1	0.90	3.2	6.8	0.47	4.3	8.6	0.50	57.7	42.7	1.35
2000	8.7	16.5	0.53	3.5	9.3	0.38	2.7	12.1	0.22	47.8	51.9	0.92
2001	23.0	28.4	0.81	8.5	16.2	0.52	12.0	35.8	0.33	51.3	103.2	0.50
2002	22.3	33.2	0.67	8.5	13.2	0.64	12.5	26.3	0.47	55.4	142.0	0.39
2003	24.9	22.5	1.11	12.5	8.7	1.44	24.0	15.7	1.52	58.0	108.4	0.54
2004	21.2	20.7	1.02	8.1	6.9	1.17	18.5	13.3	1.39	117.9	90.8	1.30
2005	18.6	20.9	0.89	7.6	8.2	0.93	17.1	11.9	1.43	91.1	65.9	1.38
2006	14.6	9.9	1.48	6.4	2.7	2.36	8.3	9.2	0.90	67.3	30.6	2.20
2007	10.8	10.7	1.01	5.4	5.8	0.93	13.6	7.1	1.92	59.4	34.6	1.72
2008	10.5	11.1	0.95	4.3	4.3	1.00	10.2	7.4	1.39	42.7	49.0	0.87
2009	19.3	15.5	1.24	9.5	9.5	1.00	31.4	16.0	1.97	59.2	104.6	0.57
2010	22.0	16.4	1.34	7.6	10.9	0.70	21.8	16.5	1.32	67.9	126.1	0.54
2011	28.2	12.8	2.20	11.6	12.1	0.96	13.3	11.9	1.12	89.1	100.9	0.88
2012	33.5	12.4	2.70	14.3	5.7	2.51	37.2	8.1	4.59	150.2	104.0	1.44
2013	17.2	15.7	1.10	8.6	8.6	1.00	24.8	9.2	2.70	197.4	78.8	2.51
2014	18.4	NA	NA	8.9	NA	NA	10.3	NA	NA	108.8	NA	NA
2015	12.9	-	-	6.3	-	-	9.3	-	-	142.6	-	-

a/ Coho FRAM was used to estimate post-season ocean abundance.

TABLE III-4. Preseason forecasts and postseason estimates of ocean escapements for selected Puget Sound adult natural coho stocks in thousands of fish. (Page 1 of 2)

Year	Preseason Forecast[b/]	Postseason Return	Pre/Postseason	Preseason Forecast	Postseason Return	Pre/Postseason	Preseason Forecast	Postseason Return	Pre/Postseason
		Skagit River			**Stillaguamish River**			**Hood Canal**	
1986	NA	332.1	-	NA	76.8	-	110.8	197.9	0.56
1987	NA	261.1	-	NA	46.3	-	96.5	71.7	1.35
1988	NA	202.9	-	NA	35.4	-	39.6	15.5	2.55
1989	NA	220.0	-	NA	13.5	-	77.4	25.5	3.04
1990	NA	87.2	-	75.8	34.1	2.22	94.2	14.2	6.63
1991	NA	81.4	-	71.5	11.3	6.33	38.1	15.3	2.49
1992	NA	64.6	-	42.4	18.0	2.36	23.2	19.9	1.17
1993	NA	69.6	-	61.8	10.6	5.83	89.6	16.7	5.37
1994	NA	108.2	-	21.9	30.3	0.72	25.4	57.0	0.45
1995	NA	86.4	-	70.3	20.4	3.45	36.4	41.1	0.89
1996	NA	48.3	-	51.6	12.5	4.13	25.1	37.2	0.67
1997	70.9	63.1	1.12	36.0	14.1	2.56	78.4	101.8	0.77
1998	55.0	95.1	0.58	47.8	31.1	1.54	108.0	118.5	0.91
1999	75.7	40.9	1.85	35.7	7.5	4.77	65.1	17.6	3.70
2000	30.2	95.2	0.32	17.7	31.2	0.57	61.0	39.7	1.54
2001	87.2	132.5	0.66	24.4	81.8	0.30	62.0	110.0	0.56
2002	98.5	71.8	1.37	19.7	30.4	0.65	34.9	81.0	0.43
2003	116.6	114.1	1.02	37.8	49.8	0.76	33.4	199.9	0.17
2004	155.8	145.3	1.07	38.0	73.9	0.51	98.7	219.7	0.45
2005	61.8	52.4	1.18	56.7	29.1	1.95	98.4	68.3	1.44
2006	106.6	11.5	9.25	45.0	11.8	3.81	59.4	49.7	1.20
2007	26.8	83.0	0.32	69.2	45.2	1.53	42.4	78.6	0.54
2008	61.4	35.5	1.73	31.0	15.3	2.03	30.4	25.8	1.18
2009	33.4	87.5	0.38	13.4	27.4	0.49	48.6	45.7	1.06
2010	95.9	62.0	1.55	25.9	16.6	1.56	33.2	13.3	2.50
2011	138.1	68.6	2.01	66.6	63.2	1.05	74.7	58.2	1.28
2012	48.3	142.6	0.34	47.5	63.7	0.75	73.4	84.5	0.87
2013	137.2	150.8	0.91	33.1	89.9	0.37	36.8	37.8	0.97
2014	112.4	NA	NA	32.5	NA	NA	82.8	NA	NA
2015	121.4			31.3			61.5		

TABLE III-4. Preseason and postseason estimates of ocean abundance[a/] for selected Puget Sound adult natural coho stocks in thousands of fish. (Page 2 of 2)

Year	Preseason Forecast	Postseason Return	Pre/Postseason	Preseason Forecast	Postseason Return	Pre/Postseason
		Snohomish			**Strait of Juan de Fuca**	
1986	NA	293.0	-	24.7	50.6	0.49
1987	NA	46.3	-	17.8	24.4	0.73
1988	NA	35.4	-	19.5	26.3	0.74
1989	NA	13.5	-	17.0	29.3	0.58
1990	308.8	276.5	1.12	25.8	29.4	0.88
1991	308.8	163.4	1.89	24.1	22.0	1.10
1992	389.7	192.5	2.02	25.7	28.6	0.90
1993	394.4	142.3	2.77	20.8	11.6	1.79
1994	256.7	293.6	0.87	20.8	11.5	1.81
1995	358.3	211.3	1.70	11.4	23.0	0.50
1996	338.1	132.3	2.55	10.7	19.4	0.55
1997	186.6	106.4	1.75	6.5	20.3	0.32
1998	165.3	193.9	0.85	16.8	21.0	0.80
1999	141.6	82.2	1.72	14.7	9.9	1.48
2000	53.0	154.6	0.34	13.5	28.6	0.47
2001	129.6	360.1	0.36	21.4	43.9	0.49
2002	123.1	185.5	0.66	21.3	26.3	0.81
2003	203.0	198.0	1.03	25.6	22.9	1.12
2004	192.1	287.9	0.67	35.7	23.8	1.50
2005	241.6	133.4	1.81	20.7	12.5	1.66
2006	139.5	94.2	1.48	26.1	4.6	5.65
2007	98.9	156.4	0.63	29.9	10.2	2.92
2008	92.0	49.5	1.86	24.1	3.9	6.25
2009	67.0	133.4	0.50	20.5	24.7	0.83
2010	99.4	53.9	1.84	8.5	19.9	0.43
2011	180.0	141.8	1.27	12.3	18.9	0.65
2012	109.0	190.0	0.57	12.6	13.5	0.93
2013	163.8	188.6	0.87	12.6	9.8	1.29
2014	150.0	NA	NA	12.5	NA	NA
2015	151.5			11.1		

a/ Coho FRAM was used to estimate post season ocean abundance.

b/ Preseason forecasts in 1986-1996 were based on accounting system that signficantly underestimated escapement and are not comparable to post season.

TABLE III-5. Status categories and constraints for Puget Sound and Washington Coast coho under the FMP and PST Southern Coho Management Plan.

FMP

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

PST Southern Coho Management Plan

U.S. Management Unit	Total Exploitation Rate Constraint[b/]	Categorical Status[c/]
Skagit	60%	Abundant
Stillaguamish	50%	Abundant
Snohomish	60%	Abundant
Hood Canal	65%	Abundant
Strait of Juan de Fuca	20%	Low
Quillayute Fall[c/]		Low
Hoh[c/]		Moderate
Queets[c/]		Low
Grays Harbor		Abundant

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

b/ Preliminary. For Puget Sound and Washington Coast management units, the exploitation rate constraints reflect application of the 2002 PST Southern Coho Management Plan.

c/ Categories (Abundant, Moderate, Low) correspond to the general exploitation rate ranges depicted in paragraph 3(a) of the 2002 PST Southern Coho Management Plan. For Washington Coast stocks, categorical status is determined by taking the midpoint of the range of exploitation rates associated with achieving the escapement goal ranges. The exploitation rate ranges are based on preseason abundance forecasts and the upper and lower ends of the escapement goal ranges. Maximum exploitation rates are computed using the lower end of the escapement range; minimum exploitation rates are computed using the upper end of the escapement range.

TABLE III-6. Projected coho mark rates for 2015 fisheries under base period fishing patterns (percent marked).

Area	Fishery	June	July	August	Sept
Canada					
Johnstone Strait	Recreational	-	25%	22%	-
West Coast Vancouver Island	Recreational	42%	33%	42%	44%
North Georgia Strait	Recreational	42%	43%	42%	37%
South Georgia Strait	Recreational	33%	47%	38%	41%
Juan de Fuca Strait	Recreational	43%	45%	46%	42%
Johnstone Strait	Troll	50%	41%	23%	37%
NW Vancouver Island	Troll	43%	36%	34%	28%
SW Vancouver Island	Troll	48%	45%	45%	46%
Georgia Strait	Troll	50%	50%	52%	46%
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	54%	49%	47%	47%
Strait of Juan de Fuca (Area 6)	Recreational	51%	46%	47%	44%
San Juan Island (Area 7)	Recreational	39%	46%	43%	31%
North Puget Sound (Areas 6 & 7A)	Net	-	51%	43%	37%
Council Area					
Neah Bay (Area 4/4B)	Recreational	36%	51%	49%	54%
LaPush (Area 3)	Recreational	57%	55%	56%	39%
Westport (Area 2)	Recreational	63%	62%	59%	51%
Columbia River (Area 1)	Recreational	71%	70%	65%	67%
Tillamook	Recreational	62%	58%	53%	40%
Newport	Recreational	58%	54%	52%	39%
Coos Bay	Recreational	50%	47%	37%	23%
Brookings	Recreational	44%	33%	28%	11%
Neah Bay (Area 4/4B)	Troll	47%	48%	48%	47%
LaPush (Area 3)	Troll	51%	55%	49%	48%
Westport (Area 2)	Troll	46%	54%	57%	52%
Columbia River (Area 1)	Troll	65%	65%	62%	60%
Tillamook	Troll	59%	56%	56%	53%
Newport	Troll	56%	55%	51%	50%
Coos Bay	Troll	50%	47%	42%	29%
Brookings	Troll	39%	39%	42%	56%
Columbia River					
Buoy 10	Recreational	-	-	-	66%

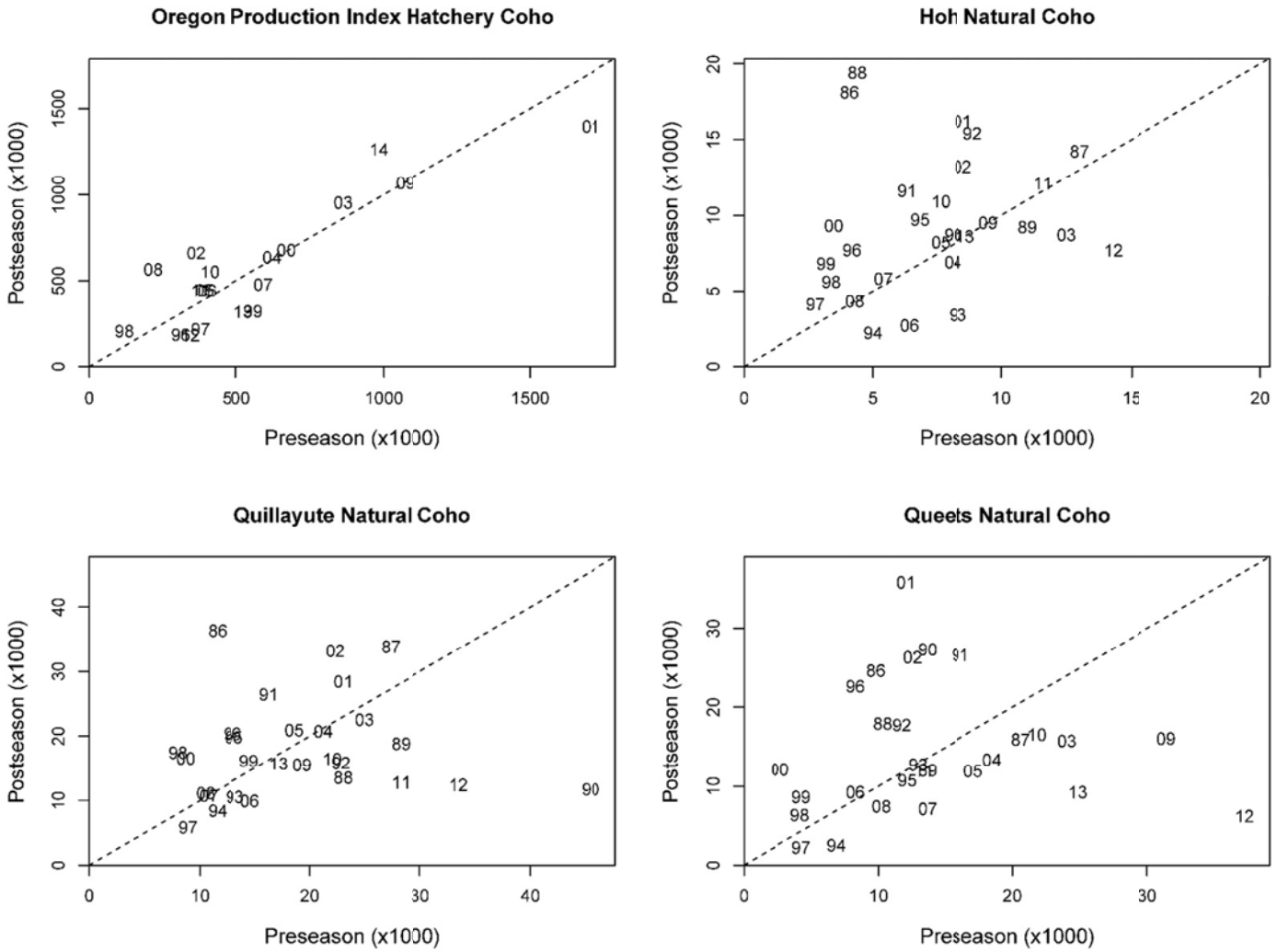
Oregon Production Index Hatchery Coho
Postseason (x1000)
Preseason (x1000)
Hoh Natural Coho
Postseason (x1000)
Preseason (x1000)
Quillayute Natural Coho
Postseason (x1000)
Preseason (x1000)
Queets Natural Coho
Postseason (x1000)
Preseason (x1000)

FIGURE III-1a. Selected preseason vs. postseason forecasts for coho stocks with substantial contribution to Council area fisheries.

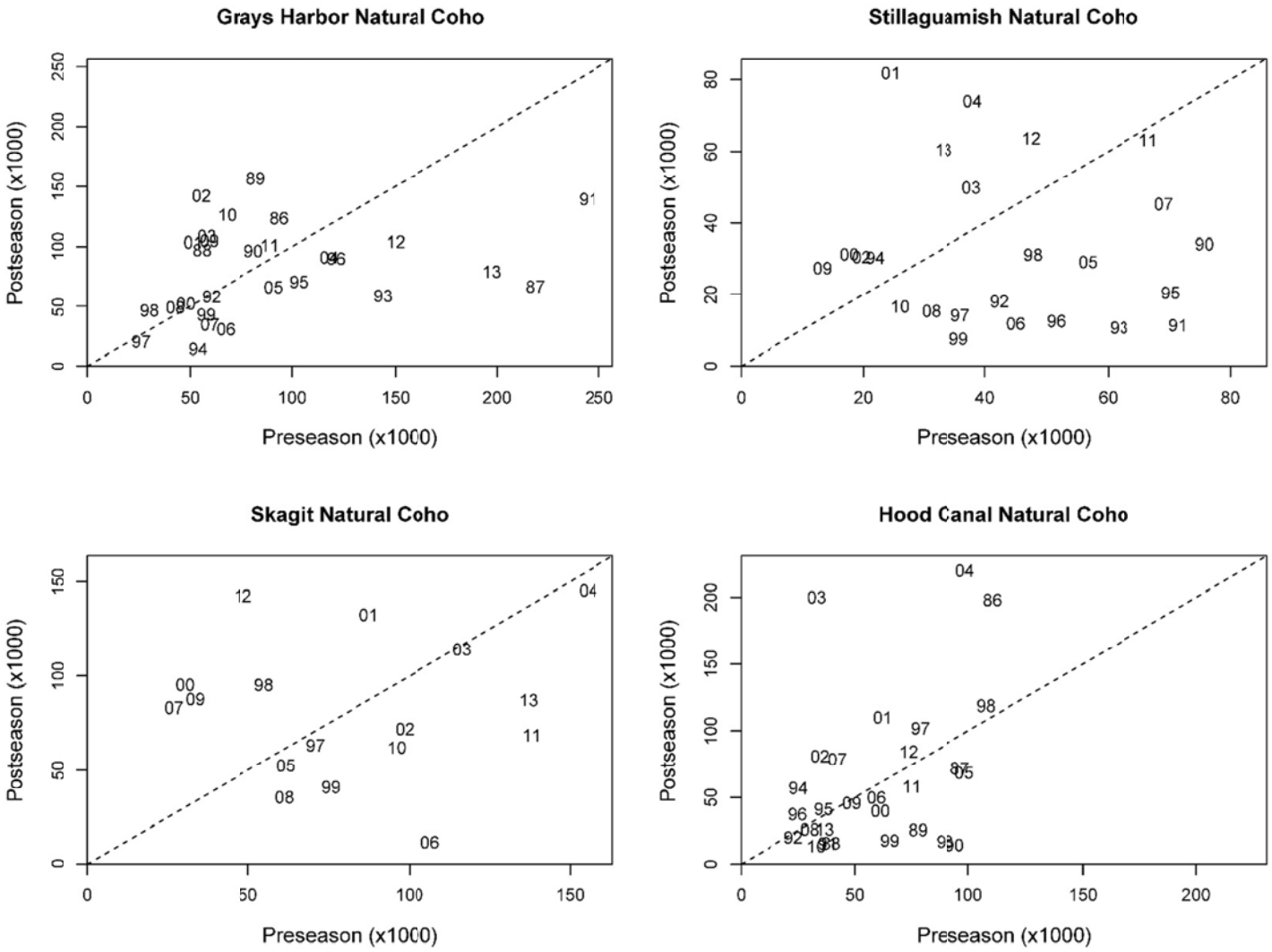

FIGURE III-1b. Selected preseason vs. postseason forecasts for coho stocks with substantial contribution to Council area fisheries.

CHAPTER IV: AFFECTED ENVIRONMENT - PINK SALMON ASSESSMENT

Two major runs comprise the pink salmon population available to Council fisheries during odd-numbered years: the Fraser River (British Columbia) run, which is more abundant, and the Puget Sound run. The 2015 run size forecast for Fraser pinks is 14.5 million fish; the actual run size was estimated for 2013 was about 15.9 million. The 2015 Puget Sound pink salmon run size forecast was 6.76 million. The actual run size estimate for 2013 was about 8.75 million fish. Because pink salmon are not available to Council fisheries during an even-numbered year, they were not an important management component for 2014.

Table IV-1 provides a summary of recent run sizes and forecasts.

TABLE IV-1. Estimated annual (odd-numbered years) run sizes and forecasts for Fraser River and Puget Sound pink salmon in millions of fish.

	Puget Sound		Fraser River[a/]	
Year	Forecast	Actual	Forecast	Actual
1977	NA	0.88	NA	8.21
1979	NA	1.32	NA	14.40
1981	NA	0.50	NA	18.69
1983	NA	1.01	NA	15.35
1985	NA	1.76	NA	19.10
1987	NA	1.57	NA	7.17
1989	NA	1.93	NA	16.63
1991	NA	1.09	NA	22.18
1993	NA	1.06	NA	16.98
1995	3.4	2.08	NA	12.90
1997	NA	0.44	11.40	8.18
1999	NA	0.96	NA	3.59
2001	2.92	3.56	5.47	21.17
2003	2.32	2.90	17.30	26.00
2005	1.98	1.23	16.30	10.00
2007	3.34	2.45	19.60	11.00
2009	5.16	9.84	17.54	19.50
2011	5.98	5.27	17.50	20.65
2013	6.27	8.75	8.93	15.90
2015[b/]	6.76	-	14.50	-

a/ Total run size.

b/ Preliminary forecast.

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CHAPTER V: DESCRIPTION AND ANALYSIS OF THE NO ACTION ALTERNATIVE

The No-Action Alternative consists of the preseason management measures adopted by the Council and approved by the Secretary of Commerce for the 2014 ocean salmon management season between the U.S./Canada border and the U.S./Mexico border. The management measures relate to three fishery sectors: non-Indian commercial (Table V-1), recreational (Table V-2), and treaty Indian (Table V-3). A description of the 2014 preseason management measures and analyses of their projected effects on the biological and socioeconomic environment are presented in Preseason Report III (PFMC 2014c). A description of the 2014 management measures as implemented, including inseason modifications, and an analysis of their effects on the environment, including an historical perspective, is presented in the SAFE document - Review of 2014 Ocean Salmon Fisheries (PFMC 2015).

ANALYSIS OF EFFECTS ON THE ENVIRONMENT OF THE NO-ACTION ALTERNATIVE

Overview

Table V-4 provides a summary of Salmon FMP stock spawning escapement and exploitation rate projections for 2015 under the No-Action Alternative (2014 regulations), as well as postseason estimates of these quantities for earlier years, which are compared to FMP conservation objectives. For some stocks, postseason estimates of these metrics were either incomplete or unavailable when the Review of 2014 Ocean Salmon Fisheries was published. A preliminary determination of stock status under the FMP SDC was available for some of these stocks in time for this report; however, some estimates are still unavailable. The STT will report to the Council on the status of stocks at the March 2015 Council meeting, and may further update the status of stocks present in Table V-4 at that time.

Chinook escapements and fishery impacts were forecast using the Sacramento Harvest Model, the Winter Run Harvest Model, and the Klamath Ocean Harvest Model for SRFC, SRWC and KRFC, respectively. Assessment of effects under the No-Action Alternative for Oregon Coast Chinook are not available; for Columbia River Chinook stocks assessments were based on qualitative assessment of the magnitude of forecasts, if available, in relation to escapement goals.

Coho escapements and fishery impacts were estimated using Coho FRAM. Abundance forecasts for 2015 were updated for Washington and Oregon stocks, but forecasts for Canadian stocks are unchanged from those employed for 2014 planning. Updated forecasts for Canadian stocks are expected to become available in March 2015. To provide information on the effect of changes in abundance forecasts, the final 2014 pre-season regulatory package for ocean and inside fisheries was applied to 2015 projections of abundance.

Sacramento River Fall Chinook

A repeat of 2014 regulations would be expected to result in an escapement of 337,602 hatchery and natural area SRFC adults, which is well above the 2015 preseason S_{ACL} of 195,596 (Tables V-4 and V-5). The geometric mean of the 2013 and 2014 spawning escapement estimates, and the 2015 forecast spawning escapement under the No-Action Alternative, is greater than the MSST, therefore the stock is not approaching an overfished condition. The predicted SRFC exploitation rate under the No-Action Alternative is 0.48, well below the MFMT (Table V-4). If the ocean fisheries were closed from January through August 2015 between Cape Falcon and the U.S./Mexico border, and Sacramento Basin fisheries were closed in 2015, the expected number of hatchery and natural area adult spawners would be 626,326.

The 2014 estimate of SRFC escapement was 211,668, which exceeds the 2014 postseason S_{ACL} of 166,480 (Table V-5).

Sacramento River Winter Chinook

A repeat of 2014 regulations would be expected to result in an age-3 impact rate of 15.2 percent for the area south of Point Arena. The 2015 forecast age-3 impact rate under the No-Action Alternative is lower than the 2015 maximum allowable rate of 19.0 percent.

Klamath River Fall Chinook

A repeat of 2014 fishery regulations, which included a river recreational harvest allocation of 15.1 percent of the non-tribal harvest and a tribal allocation of 50 percent of the overall adult harvest, would be expected to result in 57,792 natural area adult spawners. This projection is greater than the S_{MSY} of 40,700 natural area adults and the 2015 preseason S_{ACL} of 31,713 (Tables V-4 and V-5). The geometric mean of the 2013 and 2014 natural area adult spawner escapement estimates, and the 2015 forecast spawning escapement under the No-Action Alternative, is greater than the MSST; therefore the stock is not approaching an overfished condition. The predicted KRFC exploitation rate under the No-Action Alternative is 41.7 percent, which is lower than the MFMT (Table V-4). If the ocean fisheries were closed from January through August 2015 between Cape Falcon and Point Sur, and the Klamath River fisheries (tribal and recreational) were closed in 2015, the expected number of natural area adult spawners would be 98,888.

The 2014 estimate of KRFC escapement was 95,330 natural area adults, which exceeds the 2014 postseason S_{ACL} of 47,309 (Table V-5).

California Coastal Chinook Stocks

The NMFS ESA consultation standard restricts the Klamath River fall Chinook age-4 ocean harvest rate to no more than 16.0 percent to limit impacts on these stocks. As indicated in Chapter II, the postseason estimate of this rate for 2014 is 17.0 percent. Applying 2014 regulations to the 2015 KRFC abundance results in an age-4 ocean harvest rate forecast of 13.5 percent. If the ocean fisheries were closed from January through August 2015 between Cape Falcon and Point Sur, the expected age-4 ocean harvest rate for 2014 would be 0.2 percent (126 age-4 KRFC were harvested during the September through November 2014 period).

Oregon Coast Chinook Stocks

The FMP conservation objective for the northern and central Oregon coast Chinook stock complexes is based on a total goal of 150,000 to 200,000 natural adult spawners. For these two stock complexes attainment of goals are assessed using peak spawner counts observed in standard index reaches for the respective complexes. For the southern Oregon coast Chinook stock complex, the FMP conservation objective is assessed using the escapement estimate at Huntley Park on the Rogue River. No forecasts are available for these stocks, but given recent trends, it seems likely that escapement goals would be met again in 2015 under 2014 fishing seasons.

Columbia River Chinook Stocks

The 2015 forecasts are similar to the 2014 forecasts for Columbia River spring and summer Chinook stocks. The 2015 forecasts for fall Chinook are strong, but lower than the very high forecasts for 2014. Applying 2014 regulations to the forecasted 2015 abundance of Columbia River Chinook would result in ocean escapements meeting spawning escapement goals for all summer and fall Chinook stocks (Table V-4).

Washington Coast and Puget Sound Chinook Stocks

Council fisheries north of Cape Falcon have a negligible impact on Washington coast Chinook stocks and a minor impact on stocks that originate in Puget Sound. These stocks have northerly marine distribution

patterns, and are therefore impacted primarily by Canadian and Alaskan fisheries. An evaluation of 2014 Council area management measures on projected 2015 abundance would not provide a useful comparison of fishery impacts in relation to conservation objectives.

Oregon Production Index Area Coho Stocks

Ocean fisheries were modeled with 2014 Council regulations and 2014 expectations for non-Council area fisheries. Under this scenario, expected exploitation rates are 26.3 percent on OCN coho and 7.1 percent on Rogue/Klamath hatchery coho. Expected ocean escapement is 153,300 for OCN coho (Table V-6). For Columbia River hatchery coho stocks, the predicted ocean exploitation rate (excluding Buoy 10) is 36.6 percent on the Columbia River early stock and 49.0 percent on the Columbia River late stock. Predicted ocean escapements (after Buoy 10) into the Columbia River in 2015 under this exercise show that under 2014 ocean regulations, Columbia River early and late coho would be expected to meet egg take goals.

As noted in Chapter III, the total allowable OCN coho exploitation rate for 2015 fisheries is no greater than 15.0 percent in the revised OCN coho matrix (Table V-8; Appendix A, Table A-4), and the total allowable RK hatchery coho marine exploitation rate is 13.0 percent (NMFS ESA consultation standard). Under 2014 fishery regulations and 2015 abundance forecasts, these exploitation rates are predicted to be 26.3 percent for OCN, and 7.1 percent for RK coho (Table V-7). The 2015 allowable LCN coho exploitation rate is expected to be 23.0 percent in the marine area and mainstem Columbia River fisheries combined pending NMFS ESA guidance. Under 2014 fishery regulations and 2015 abundance forecasts, the exploitation rate is predicted to be 18.1 percent for marine fisheries (excluding the Buoy 10 fishery) using combined unmarked Columbia River hatchery stocks as the proxy. Given the 2014 inriver sharing arrangement, the total exploitation rate on LCN coho would be 25.6 percent.

Washington Coast, Puget Sound, and Canadian Coho Stocks

Exploitation rate and ocean escapement expectations in relation to management goals for selected naturally-spawning coho stocks, given 2015 preseason abundance forecasts and 2014 preseason projections for fishing patterns, are presented in Table V-6. The 2015 forecasts for Canadian coho stocks are not available, but are assumed to be at 2014 levels for this analysis. More detailed fishery management goals for Council area coho stocks are listed in Appendix A.

Under 2014 regulations, 2015 exploitation rates are expected to meet the allowable 2015 FMP conservation objectives for Puget Sound coho stocks. Ocean escapements for Washington Coast natural coho stocks are expected to be at levels that would permit attainment of FMP spawning escapement conservation objectives; however, adjustments to 2014 regulations would be required to allow for meaningful in-river fisheries. All annual management objectives for U.S. stocks subject to the PSC agreement would be met with the exception of Interior Fraser (B.C.) coho. The exploitation rate by U.S. fisheries south of the Canadian border on Interior Fraser (B.C.) coho is projected to be 10.4 percent, which is slightly above the anticipated 10.0 percent allowable exploitation rate under the 2002 PST Coho Agreement. The Council area fisheries portion would be 6.0 percent.

Coho bycatch during Puget Sound fisheries directed at pink, chum and sockeye salmon will also be a consideration for preseason planning.

Summary

The effects of projected impacts (where available) under 2014 fishery regulations and 2015 abundance forecasts are as follows:

- All stocks with available information would achieve S_{MSY} spawning escapement objectives, except for Strait of Juan de Fuca coho.

- SRFC hatchery and natural area adult escapement would exceed the preseason S_{ACL}.
- KRFC natural area adult escapement would exceed the preseason S_{ACL}.
- The KRFC age-4 ocean harvest rate would be lower than the California Coastal Chinook ESA consultation standard.
- All stocks would have projected exploitation rates less than MFMT or ESA consultation standards except OCN coho and LCN coho.
- All Puget Sound coho would have exploitation rates less than the annual rates allowed under the FMP harvest rate matrix and the PST 2002 Southern Coho Management.
- No stocks would be approaching an overfished condition.

Conclusion

The No-Action Alternative would not meet the Purpose and Need for the proposed action because:

- OCN coho and LCN coho would exceed the rates allowed under the ESA.

The No-Action Alternative does not reflect consideration of changes in the status of salmon stocks from the previous year; therefore, over- or under- harvest of some salmon stocks would occur if this alternative were implemented. The analysis of the No-Action Alternative does, however, provide perspective that is useful in the planning process for 2015 ocean salmon fishery management measures. An understanding of stock shortfalls and surpluses under the No-Action Alternative helps managers, advisors, and constituents construct viable alternatives to the status-quo management measures.

TABLE V-1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 1 of 6)

A. SEASON ALTERNATIVE DESCRIPTIONS

North of Cape Falcon

Supplemental Management Information

1. Overall non-Indian TAC: 116,000 (non-mark-selective equivalent of 111,500) Chinook and 220,000 coho marked with a healed adipose fin clip (marked).
2. Non-Indian commercial troll TAC: 56,900 Chinook and 35,200 marked coho.

U.S./Canada Border to Cape Falcon

- May 1 through earlier of June 30 or 37,900 Chinook, no more than 12,200 of which may be caught in the area between the U.S./Canada border and the Queets River.

Seven days per week (C.1). All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). Vessels in possession of salmon north of the Queets River may not cross the Queets River line without first notifying WDFW at 360-902-2739 with area fished, total Chinook 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 360-902-2739 with area fished, total Chinook and halibut catch aboard, and destination (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). When it is projected that 28,425 Chinook have been landed overall, or 9,150 Chinook have been landed in the area between the U.S/Canada border and the Queets River, inseason action modifying the open period to five days per week and adding landing and possession limits will be considered to ensure the guideline is not exceeded. Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing or in possession of salmon while fishing north of Leadbetter Pt. must land and deliver their fish within the area and north of Leadbetter Pt.. Vessels fishing or in possession of salmon while fishing south of Leadbetter Pt. must land and deliver their fish within the area and south of Leadbetter Pt., except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Pt., Washington and Cape Falcon, Oregon must 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 nfalcon.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.

U.S./Canada Border to Cape Falcon

- July 1 through earlier of September 16 or attainment of the quota of 19,000 Chinook (C.8), no more than 8,750 of which may be caught in the area between the U.S./Canada border and the Queets River, or 35,200 marked coho, no more than 5,040 of which may be caught in the area between the U.S./Canada border and the Queets River (C.8.d).

July 1 – 8, then Friday through Tuesday July 11 – August 19 with a landing and possession limit for each open period of 60 Chinook and 40 marked coho per vessel per open period north of the Queets River or 60 Chinook and 60 marked coho per vessel per open period south of the Queets River. From August 22 – September 16, the fishery will be open Friday through Tuesday with a landing and possession limit of 20 Chinook and 50 marked Coho per vessel per open period north of the Queets River or 20 Chinook and 50 marked Coho per vessel per open period south of the Queets River (C.1). Vessels in possession of salmon north of the Queets River may not cross the Queets River line without first notifying WDFW at 360-902-2739 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 360-902-2739 with area fished, total Chinook, coho, and halibut catch aboard, and destination (C.6). When it is projected that 14,250 Chinook have been landed overall, or 6,560 Chinook have been landed in the area between the U.S/Canada border and the Queets River, inseason action modifying the open period to five days per week and adding landing and possession limits will be considered to ensure the guideline is not exceeded. No earlier than September 1, if at least 5,000 marked coho remain on the quota, inseason action may be considered to allow non-selective coho retention (C.8). All salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). Chinook minimum size limit of 28 inches total length (B, C.1). All coho must be marked except as noted above (C.8.d). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones, and beginning August 9, Grays Harbor Control Zone Closed (C.5). Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Vessels fishing or in possession of salmon while fishing north of Leadbetter Pt. must land and deliver their fish within the area and north of Leadbetter Pt.. Vessels fishing or in possession of salmon while fishing south of Leadbetter Pt. must land and deliver their fish within the area and south of Leadbetter Pt., except that Oregon permitted vessels may also land their 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 Pt., Washington and Cape Falcon, Oregon must 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 nfalcon.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.

TABLE V-1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 2 of 6)

A. SEASON ALTERNATIVE DESCRIPTIONS

South of Cape Falcon

Supplemental Management Information

1. Klamath River recreational fishery allocation: 4,128 adult Klamath River fall Chinook.
2. Klamath tribal allocation: 27,294 adult Klamath River fall Chinook.

Cape Falcon to Humbug Mt.

- April 1-July 31, August 6-29;
- September 3-October 31 (C.9.a).

Seven days per week. All salmon except coho except as listed below for September non-selective coho incidental retention (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 fish in the State of Oregon (C.6). See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay.
Beginning September 3, no more than 65 Chinook per vessel per landing week (Wed.-Tues.).

Non-selective incidental coho retention:

- September 3 through the earlier of the quota or September 30, retention of coho will be limited to no more than one coho for each landed Chinook with a landing week limit of no more than 20 coho per vessel if sufficient quota is available for transfer from the Cape Falcon to Humbug Mt. non-selective recreational fishery (C.8.b).

Oregon State regulations require all fishers landing coho salmon from this season to notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 252. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery.

In 2015, the season will open March 15, all salmon except coho. Chinook minimum size limit of 28 inches total length. Gear restrictions same as in 2014. This opening may be modified following Council review at its March 2015 meeting

Humbug Mt. to OR/CA Border (Oregon KMZ)

- April 1-May 31;
- June 15 through earlier of June 30, or a 1,500 Chinook quota;
- July 1 through earlier of July 31, or a 500 Chinook quota;
- August 6 through earlier of August 29, or a 500 Chinook quota;
- September 12 through earlier of September 27 or a 500 Chinook quota (C.9.a).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). Prior to June 1, all fish caught in this area must be landed and delivered in the State of Oregon. June 15 – August 29 landing and possession limit of 30 Chinook per vessel per day. September 12-27 landing and possession limit of 20 Chinook per vessel per day. Any remaining portion of the June and/or July Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period (C.8). All vessels fishing in this area must land and deliver all fish within this area or Port Orford, within 24 hours of any closure of this fishery, and prior to fishing outside of this area. State regulations require fishers intending to transport and deliver their catch to other locations after first landing in one of these ports notify ODFW prior to transport away from the port of landing by calling 541-867-0300 Ext. 252 or sending notification via email to KMZOR.trollreport@state.or.us, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

In 2015, the season will open March 15 for all salmon except coho, with a 28 inch Chinook minimum size limit. This opening could be modified following Council review at its March 2015 meeting.

OR/CA Border to Humboldt South Jetty (California KMZ)

- September 12 through earlier of September 30, or 4,000 Chinook quota (C.9.b).

Five days per week, Friday through Tuesday. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). Landing and possession limit of 20 Chinook per vessel per day (C.8.g). All fish caught in this area must be landed within the area and 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. When the fishery is closed between the OR/CA border and Humbug Mt. 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).

Humboldt South Jetty to Horse Mt.

Closed.

TABLE V-1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 3 of 6)

A. SEASON ALTERNATIVE DESCRIPTIONS

Horse Mt. to Pt. Arena (Fort Bragg)

- June 19-30;
- July 15-31;
- August 1-29;
- September 1-30 (C.9.b).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). When the CA KMZ fishery is open, all fish caught in the area must be landed south of Horse Mt. (C.6). During September, all fish must be landed north of Pt. Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

In 2015, the season will open April 16-30 for all salmon except coho, with a 27 inch Chinook minimum size limit and the same gear restrictions as in 2014. All fish caught in the area must be landed in the area. This opening could be modified following Council review at its March 2015 meeting.

Pt. Arena to Pigeon Pt. (San Francisco)

- May 1-31;
- June 1-30;
- July 15-31;
- August 1-29;
- September 1-30 (C.9.b).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length prior to September 1, 26 inches thereafter (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). During September, all fish must be landed south of Pt. Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

Pt. Reyes to Pt. San Pedro (Fall Area Target Zone)

- October 1-3, 6-10, and 13-15.

All salmon except coho (C.4, C.7). Chinook minimum size limit of 26 inches total length (B, C.1). All fish caught in this area must be landed between Pt. Arena and Pigeon Pt. (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

Pigeon Pt. to U.S./Mexico Border (Monterey)

- May 1-31;
- June 1-30;
- July 15-31;
- August 1-13 (C.9.b).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). All fish must be landed in California and offloaded within 24 hours of August 29 (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the State. (California Fish and Game Code §8226)

B. MINIMUM SIZE (Inches)

	Chinook		Coho		
Area (when open)	Total Length	Head-off	Total Length	Head-off	Pink
North of Cape Falcon	28.0	21.5	16.0	12.0	None
Cape Falcon to OR/CA Border	28.0	21.5	16.0	12.0	None
OR/CA Border to Humboldt South Jetty	27.0	20.5	-	-	None
Horse Mt. to Pt. Arena	27.0	20.5	-	-	None
Pt. Arena to U.S./Mexico Border					
Prior to Sept. 1	27.0	20.5	-	-	None
Sept. 1 to October 15	26.0	19.5	-	-	None

TABLE V-1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 4 of 6)

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 96 hours for that species of salmon. Salmon may be landed in an area that has been closed for a species of salmon more than 96 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. In that portion of the fishery management area off Oregon and Washington, the line or lines must be affixed to the vessel and must not be intentionally disengaged from the vessel at any time during the fishing operation.

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

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

C.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 and OSP at least 24 hours prior to sampling and provide the following information: the vessel name, date, location and time collection activities will be done. Any vessel collecting GSI samples in a closed area shall not possess any salmon other than those from which GSI samples are being collected. Salmon caught for collection of GSI samples must be immediately released in good condition after collection of samples.

C.5. Control Zone Definitions:

a. *Cape Flattery Control Zone* - The area from Cape Flattery (48º23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48º10'00" N. lat.) and east of 125º05'00" W. long.
b. *Mandatory Yelloweye Rockfish Conservation Area* – The area in Washington Marine Catch Area 3 from 48°00.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°16.50' W. long. to 48°00.00' N. lat.; 125°16.50' W. long. and connecting back to 48°00.00' N. lat.; 125°14.00' W. long.
c. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 55'36" N. lat., 124°10'51" W. long.).
d. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat.,124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.
e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately six 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 six nautical miles south of the Klamath River mouth).

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 amount 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 2015 for 2015 permits (*exact date to be set by the IPHC in early 2015*). Incidental harvest is authorized only during April, May, and June of the 2014 troll seasons and after June 30 in 2014 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 29,671 pound preseason IPHC 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.

May 1, 2014 through December 31, 2014 and April 1-30, 2015, license holders may land or possess no more than one Pacific halibut per each four Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 12 halibut may be possessed or landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).

Incidental Pacific halibut catch regulations in the commercial salmon troll fishery adopted for 2014, prior to any 2014 inseason action, will be in effect when incidental Pacific halibut retention opens on April 1, 2015 unless otherwise modified by inseason action at the March 2015 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 V-1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 6 of 6)

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

a. Chinook remaining from the May through June non-Indian commercial troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline if the transfer would not result in exceeding preseason impact expectations on any stocks.

b. If at least 35,000 coho are available for the recreational non-selective coho salmon season quota between Cape Falcon and Humbug Mt. (combined initial quota and impact neutral rollover from the recreational selective coho fishery between Cape Falcon and the Oregon-California Border) consideration will be made to transfer a portion of the remaining coho that are in excess of those needed to meet the recreational objectives to the commercial troll season between Cape Falcon and Humbug Mt. Landing week limits and coho per Chinook ratios may be adjusted inseason.

c. Chinook remaining from the June and/or July non-Indian commercial troll quotas in the Oregon 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.

d. NMFS may transfer fish 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.

e. At the March 2015 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2014).

f. If retention of unmarked coho is permitted by inseason action, the allowable coho quota will be adjusted to ensure preseason projected impacts on all stocks is not exceeded.

g. 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:

a. The State of Oregon may establish additional late-season fisheries in state waters.

b. The State of California may establish limited fisheries in selected state waters.

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 Mt., Oregon, to Horse Mt., California.

TABLE V-2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 1 of 4)

A. SEASON ALTERNATIVE DESCRIPTIONS

North of Cape Falcon

Supplemental Management Information

1. Overall non-Indian TAC: 116,000 (non-mark-selective equivalent of 111,500) Chinook and 220,000 coho marked with a healed adipose fin clip (marked).
2. Recreational TAC: 59,100 (non-mark selective equivalent of 54,600) Chinook and 184,800 marked coho; all retained coho must be marked.
3. No Area 4B add-on fishery (C.6).
4. Buoy 10 fishery opens August 1 with an expected landed catch of 50,000 marked coho in August and September.

U.S./Canada Border to Queets River

- May 16-17, May 23-24, and May 31-June 13 or a coastwide marked Chinook quota of 9,000 (C.5).

Seven days per week. Two fish per day, all salmon except coho, all Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

Queets River to Leadbetter Pt.

- May 31 through earlier of June 13 or a coastwide marked Chinook quota of 9,000 (C.5).

Seven days per week. Two fish per day, all salmon except coho, all Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

Leadbetter Pt. to Cape Falcon

- May 31 through earlier of June 13 or a coastwide marked Chinook quota of 9,000 (C.5).

Seven days per week. Two fish per day, all salmon except coho, all Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

U.S./Canada Border to Cape Alava (Neah Bay)

- June 14 through earlier of September 21 or 19,220 marked coho subarea quota with a subarea guideline of 7,000 Chinook (C.5).

Seven days per week. All salmon except no chum beginning August 1; two fish per day. All coho must be marked with a healed adipose fin clip (B, C.1). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).

Cape Alava to Queets River (La Push Subarea)

- June 14 through earlier of September 21 or 4,750 marked coho subarea quota with a subarea guideline of 2,350 Chinook (C.5).
- September 27 through earlier of October 12 or 50 marked coho quota or 50 Chinook quota (C.5) in the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat.

Seven days per week. All salmon, two fish per day. All coho must be marked with a healed adipose fin clip (B, C.1). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).

Queets River to Leadbetter Pt. (Westport Subarea)

- June 14 through earlier of September 30 or 68,380 marked coho subarea quota with a subarea guideline of 27,600 Chinook (C.5).

Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked with a healed adipose fin clip (B, C.1). See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 11 (C.4). 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).

Leadbetter Pt. to Cape Falcon (Columbia River Subarea)

- June 14 through earlier of September 30 or 92,400 marked coho subarea quota with a subarea guideline of 13,100 Chinook (C.5).

Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook (B, C.1). All coho must be marked with a healed adipose fin clip (C.1). See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4). 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).

TABLE V-2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 2 of 4)

A. SEASON ALTERNATIVE DESCRIPTIONS

South of Cape Falcon

Supplemental Management Information

1. Klamath River recreational fishery allocation: 4,128 adult Klamath River fall Chinook.
2. Klamath tribal allocation: 27,294 adult Klamath River fall Chinook.
3. Overall recreational TAC: 80,000 marked coho and 20,000 unmarked coho.

Cape Falcon to Humbug Mt.

- March 15 through October 31 (C.6), except as provided below during the all salmon mark-selective and non-mark-selective coho fisheries.

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).

- Non-mark-selective coho fishery: August 30 through the earlier of September 30 or a landed catch of 20,000 non-mark-selective coho quota (C.5).

All salmon, two fish per day (C.5);
The all salmon except coho season reopens the earlier of October 1 or attainment of the coho quota (C.5).

In 2015, the season between Cape Falcon and Humbug Mt. will open March 15 for all salmon except coho, two fish per day (B, C.1, C.2, C.3).

Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 or 206-526-6667 for specific dates) (C.3.b, C.4.d).

Cape Falcon to OR/CA Border

- All salmon mark-selective coho fishery: June 21 through earlier of August 10 or a landed catch of 80,000 marked coho.

Seven days per week. All salmon, two fish per day. All retained coho must be marked with a healed adipose fin clip (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Any remainder of the mark-selective coho quota will be transferred on an impact neutral basis to the September non-selective coho quota from Cape Falcon to Humbug Mt.. The all salmon except coho season reopens the earlier of August 11 or attainment of the coho quota (C.5).

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 or 206-526-6667 for specific dates) (C.3.b, C.4.d).

Humbug Mt. to OR/CA Border. (Oregon KMZ)

- May 10 through September 7 except as provided above during the all salmon mark-selective coho fishery (C.6).

All salmon except coho, except as noted above in the all salmon mark-selective coho fishery. Seven days per week, 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).

OR/CA Border to Horse Mt. (California KMZ)

- May 10 through September 7 (C.6).

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). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Eel, and Klamath rivers.

Horse Mt. to Pt. Arena (Fort Bragg)

- April 5 through November 9.

Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3).

In 2015, season opens April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2014 (C.2, C.3).

TABLE V-2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 3 of 4)

A. SEASON ALTERNATIVE DESCRIPTIONS

Pt. Arena to Pigeon Pt. (San Francisco)

- April 5 through November 9.

Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through June 30; 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3).

In 2015, season opens April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2014 (C.2, C.3).

Pigeon Pt. to U.S./Mexico Border (Monterey)

- April 5 through October 5.

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).

In 2015, season opens April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2014 (C.2, C.3).

California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the state. (California Fish and Game Code §8226)

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

Area (when open)		Chinook	Coho	Pink
North of Cape Falcon		24.0	16.0	None
Cape Falcon to Humbug Mt.		24.0	16.0	None
Humbug Mt. to OR/CA Border		24.0	16.0	None
OR/CA Border to Horse Mt.		24.0	-	24.0
Horse Mt. to Pt. Arena		20.0	-	20.0
Pt. Arena. to Pigeon Pt.	Through June 30	24.0	-	24.0
	After June 30	20.0	-	20.0
Pigeon Pt. to U.S./Mexico Border		24.0	-	24.0

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. [Note: ODFW regulations in the state-water fishery off Tillamook Bay may allow the use of barbed hooks to be consistent with inside regulations.]

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.

TABLE V-2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 4 of 4)

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.3. Gear Definitions:

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

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

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

C.4. Control Zone Definitions:

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

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

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

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

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

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

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

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

c. Chinook and coho may be transferred between the recreational and commercial fisheries north of Cape Falcon if there is agreement among the representatives of the Salmon Advisory Subpanel (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 coho. To remain consistent with preseason expectations, any inseason action shall consider, if significant, the difference between observed and preseason forecasted mark rates. Such a consideration may also include a change in bag limit of two salmon, no more than one of which may be a coho.

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

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

TABLE V-3. Treaty Indian ocean troll management measures adopted by the Council for ocean salmon fisheries, 2014. (Page 1 of 1)

A. SEASON DESCRIPTIONS

Supplemental Management Information

1. Overall Treaty-Indian TAC: 62,500 Chinook and 57,500 coho.

- May 1 through the earlier of June 30 or 31,250 Chinook quota.

All salmon except coho. If the Chinook quota is exceeded, the excess will be deducted from the later all salmon season (C.5). See size limit (B) and other restrictions (C).

- July 1 through the earlier of September 15, or 31,250 preseason Chinook quota (C.5), or 57,500 coho quota.

All Salmon. See size limit (B) and other restrictions (C).

B. MINIMUM SIZE (Inches)

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

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

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

S'KLALLAM - Washington State Statistical Area 4B (All).

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 - That portion of the FMA between 48°07'36" N. lat. (Sand Pt.) and 47°31'42" N. lat. (Queets River) and east of 125°44'00" W. long.

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

QUINAULT - That portion of the FMA between 47°40'06" N. lat. (Destruction Island) and 46°53'18"N. lat. (Pt. Chehalis) and east of 125°44'00" W. long.

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 will continue a ceremonial and subsistence fishery during the time frame of September 15 through October 15 in the same manner as in 2004-2013. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2014 season (estimated harvest during the October ceremonial and subsistence fishery: 100 Chinook; 200 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 V-4. Stock status relative to overfished and overfishing criteria. A stock is approaching an overfished condition if the 3-year geometric mean of the most recent two years and the forecast spawning escapement is less than the minimum stock size threshold (MSST); a stock would experience overfishing if the total annual exploitation rate exceeds the maximum fishing mortality threshold (MFMT). 2015 spawning escapement and exploitation rate estimates are based on preliminary 2015 preseason abundance forecasts and 2014 Council regulations.

	Spawning Escapement								Total Exploitation Rate					
	2011	2012	2013	2014[a/]	Forecast 2015[b/]	3-yr Geo Mean	MSST	S_{MSY}	2011	2012	2013	2014[a/]	2015[b/]	MFMT
Chinook														
Sacramento Fall	119,342	285,429	406,200	211,668	337,602	307,327	91,500	122,000	0.42	0.54	0.53	0.62	0.48	0.78
Klamath River Fall	46,763	121,543	59,156	95,330	57,792	68,817	30,525	40,700	0.38	0.45	0.64	0.36	0.42	0.71
Southern Oregon[c/]	67,750	69,060	81,665	53,518	NA	67,079	20,500	38,880	NA	NA	NA	NA	NA	0.78
Central and Northern OR	109	146	189	156	NA	163	30 fish/mi	60 fish/mi	0.60	0.65	NA	NA	NA	0.78
Upper River Bright - Fall[d/]	93,510	94,925	305,445	346,000	201,262	277,071	19,182	39,625	0.60	0.54	NA	NA	NA	0.86
Upper River - Summer[d/]	44,432	52,184	68,380	77,982	43,337	61,366	6,072	12,143	0.62	**0.76**	NA	NA	NA	0.75
Willapa Bay - Fall[e/]	3,805	2,677	1,904	NA	NA	NA	1,696	3,393	0.64	**0.79**	NA	NA	NA	0.78
Grays Harbor Fall[e/]	20,317	11,969	12,582	12,400	NA	NA	5,694	11,388	0.64	**0.79**	NA	NA	NA	0.78
Grays Harbor Spring	2,563	878	2,459	1,583	NA	NA	546	1,092	NA	NA	NA	NA	NA	0.78
Queets - Fall[d/]	3,857	3,707	2,582	NA	NA	NA	1,250	2,500	0.64	0.79	NA	NA	NA	0.87
Queets - Sp/Su	373	760	520	377	NA	NA	350	700	NA	NA	NA	NA	NA	0.78
Hoh - Fall[e/]	1,293	1,800	1,269	1,514	NA	NA	600	1,200	0.64	0.79	NA	NA	NA	0.90
Hoh Sp/Su	827	915	750	744	NA	NA	450	900	NA	NA	NA	NA	NA	0.78
Quillayute - Fall[e/]	3,963	3,518	4,017	2,766	NA	NA	1,500	3,000	0.64	0.79	NA	NA	NA	0.87
Quillayute - Sp/Su	569	729	957	547	NA	NA	600	1,200	NA	NA	NA	NA	NA	0.78
Hoko -Su/Fa[d/]	1,504	1,086	1,406	1,818	NA	NA	425	850	0.18	0.35	NA	NA	NA	0.78
Coho														
Willapa Bay	31,263	20,256	NA	NA	NA	NA	Undef	Undef	0.46	0.50	NA	NA	NA	Undef
Grays Harbor	67,024	71,039	57,055	NA	NA	NA	18,320	24,426	0.42	0.44	0.44	NA	0.52	0.65
Queets	8,588	4,285	5,684	NA	NA	NA	4,350	5,800	0.36	0.30	0.39	NA	0.46	0.65
Hoh	8,043	4,179	2,899	6,352	NA	NA	1,890	2,520	0.39	0.46	**0.70**	NA	0.52	0.65
Quillayute Fall	8,070	5,846	7,063	10,356	NA	NA	4,725	6,300	0.42	0.53	0.55	NA	0.42	0.59
Juan de Fuca	14,752	14,951	7,301	NA	9,792	10,224	7,000	11,000	0.09	0.12	0.43	NA	0.12	0.60
Hood Canal	24,844	25,129	25,684	NA	28,274	26,327	10,750	14,350	0.52	**0.70**	0.55	NA	0.54	0.65
Skagit	43,042	97,151	86,974	NA	75,416	86,053	14,875	25,000	0.37	0.31	0.44	NA	0.35	0.60
Stillaguamish	49,991	45,156	60,387	NA	21,126	38,621	6,100	10,000	0.21	0.29	0.33	NA	0.33	0.50
Snohomish	111,374	130,637	115,847	NA	104,434	116,483	31,000	50,000	0.21	0.31	0.39	NA	0.31	0.60

a/ Preliminary.

b/ Preliminary approximations based on preseason abundance projections and 2014 regulations. For an indication of stock status for stocks without a 2015 forecast of escapement, see *Review of 2014 Ocean Salmon Fisheries (PFMC 2015)*, *Table II-6 and Table III-7*.

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

d/ CWT based exploitation rates from annual catch and escapement distribution from PSC-CTC 2013 Exploitation Rate Analysis.

e/ Queets River fall Chinook CWT exploitation rates used as a proxy. Exploitation rates in the terminal fisheries will differ from those calculated for Queets fall CWTs.

TABLE V-5. Postseason S_{ACL}, S_{OFL}, and spawner escapement estimates for Sacramento River fall Chinook (SRFC) and Klamath River fall Chinook (KRFC). For the current year, S_{ACL}, S_{OFL}, and spawner escapements are preseason values based on current abundance forecasts and the previous year fishing regulations.

	SRFC			KRFC		
Year	S_{ACL}[a/]	S_{OFL}	Escapement[b/]	S_{ACL}[a/]	S_{OFL}	Escapement[c/]
2012	187,553	137,539	285,429	71,008	64,351	121,543
2013	260,535	191,059	406,200	52,182	47,290	59,156
2014	166,480	122,085	211,668	47,309	42,874	95,330
2015	195,596	143,437	337,602	31,713	28,739	57,792

a/ $S_{ACL} = S_{ABC}$.

b/ Hatchery and natural area adult spawners.

c/ Natural area adult spawners.

TABLE V-6. Estimated ocean escapements and exploitation rates for critical natural and Columbia River hatchery coho stocks (thousands of fish) based on preliminary 2015 preseason abundance forecasts and 2014 Council management measures.[a/]

	Ocean Escapement and ER Estimates Under 2014 Regulations[b/]				
	2015 Preseason		2014 Preseason		2014 FMP Conservation
Stock	Abundance	Exploitation Rate	Abundance	Exploitation Rate	Objective[c/]
Natural Coho Stocks					
Skagit	114.1	38.1%	106.1	38.1%	Exploitation Rate ≤60.0%[d/]
Stillaguamish	30.0	32.6%	31.3	32.0%	Exploitation Rate ≤50.0%[d/]
Snohomish	145.7	31.3%	144.7	30.0%	Exploitation Rate ≤60.0%[d/]
Hood Canal	57.2	54.1%	44.5	55.7%	Exploitation Rate ≤65.0%[d/]
Strait of Juan de Fuca	10.5	12.4%	11.9	12.0%	Exploitation Rate ≤20.0%[d/]
Quillayute Fall	9.8	42.2%	17.1	42.2%	6.3 - 15.8 Spawners
Hoh	4.3	51.9%	7.5	51.4%	2.0 - 5.0 Spawners
Queets	6.0	45.6%	8.4	43.7%	5.8 - 14.5 Spawners
Grays Harbor	126.0	52.3%	96.5	51.8%	35.4 Spawners
LCN	39.5	25.6%	27.7	22.5%	Exploitation Rate ≤23.0%[e/]
OCN	153.3	26.3%	179.2	25.3%	Exploitation Rate ≤15.0%[e/]
R/K	NA	7.1%	NA	6.9%	Exploitation Rate ≤13.0%[e/]
Hatchery Coho Stocks					
Columbia Early	279.7	36.6%	321.3	31.0%	6.2 Hatchery Escapement
Columbia Late	127.8	49.0%	260.4	38.7%	14.2 Hatchery Escapement

a/ Quota levels include harvest and hooking mortality estimates used in planning the Council's 2014 ocean fisheries and a coho catch for the Canadian troll fishery off the West Coast of Vancouver Island (WCVI).

b/ 2014 preseason regulations include the following coho quota fisheries: U.S. Canada Border to Cape Falcon: Treaty Indian troll -57,500 non-selective; non-Indian troll - 35,200 selective; recreational - 220,000 selective; Cape Falcon to OR/CA border: recreational - 80,000 selective and 20,000 non-selective; troll - none. Ocean escapement is generally the estimated number of coho escaping ocean fisheries and entering freshwater. For Puget Sound stocks, ocean escapement is the estimated number of coho entering Puget Sound (Area 4B) which are available for U.S. net fisheries in Puget Sound and spawning escapement after impacts associated with the Canadian and Puget Sound troll and recreational fisheries have been deducted. For the OCN coho stock, this value represents the estimated spawner escapement in SRS accounting. For Columbia River hatchery and LCN stocks, ocean escapement represents the number of coho before the Buoy 10 fishery; the LCN exploitation rates shown are total marine and mainstem Columbia River fishery ERs. The Council fisheries exploitation rates are forecast at 18.1% using 2015 abundances with 2014 fishery regulations and 14.4% in 2014 with the 2014 ESA limit of 22.5%

c/ Goals represent Salmon FMP conservation objectives, ESA consultation standards, or hatchery escapement needs. Spawning escapement goals are not directly comparable to ocean escapement because the latter occur before inside

d/ Assumed exploitation rate based on preliminary abundance forecasts.

e/ Pending confirmation of 2015 ESA consultation standard.

TABLE V-7. Comparison of Lower Columbia natural (LCN), Oregon coastal natural (OCN), and Rogue/Klamath (RK) coho projected harvest mortality and exploitation rates by fishery under Council-adopted 2014 management measures and preliminary 2015 preseason abundance estimates.

	Projected Harvest Mortality and Exploitation Rate					
	LCN		OCN		RK[a/]	
Fishery	Number	Percent	Number	Percent	Number	Percent
SOUTHEAST ALASKA	0	0.0%	0	0.0%	0	0.0%
BRITISH COLUMBIA	52	0.1%	678	0.3%	5	0.0%
PUGET SOUND/STRAITS	55	0.1%	131	0.1%	0	0.0%
NORTH OF CAPE FALCON						
Recreational	3,707	7.4%	2,909	1.4%	12	0.1%
Treaty Indian Troll	1,135	2.3%	1,129	0.5%	0	0.0%
Non-Indian Troll	1,197	2.4%	1,343	0.6%	2	0.0%
SOUTH OF CAPE FALCON						
Recreational:						
Cape Falcon to Humbug Mt.	2,229	4.5%	21,095	10.1%	165	0.9%
Humbug Mt. to Horse Mt. (KMZ)	79	0.2%	1,749	0.8%	539	2.8%
Fort Bragg	17	0.0%	662	0.3%	181	1.0%
South of Pt. Arena	14	0.0%	586	0.3%	130	0.7%
Troll:						
Cape Falcon to Humbug Mt.	436	0.9%	2,087	1.0%	30	0.2%
Humbug Mt. to Horse Mt. (KMZ)	2	0.0%	85	0.0%	33	0.2%
Fort Bragg	12	0.0%	787	0.4%	171	0.9%
South of Pt. Arena	21	0.0%	675	0.3%	40	0.2%
BUOY 10	1,444	2.9%	336	0.2%	0	0.0%
ESTUARY/FRESHWATER	2,301	4.6%	20,453	9.8%	46	0.2%
TOTAL	12,701	25.6%	54,705	26.3%	1,354	7.1%

a/ Unmarked hatchery production used as a surrogate for Rogue/Klamath natural stock coho.

TABLE V-8 Maximum allowable fishery impact rate for OCN coho under Amendment 13 matrix (Appendix A, Table A-2) and the revised OCN work group matrix (Appendix A, Table A-4) based on parent escapement levels by stock component and marine survival category.[a/]

	OCN Coho Spawners by Stock Component				Marine Survival Indicator		Amendment 13 Matrix			OCN Work Group Matrix[a/]		
Fishery Year (t)	Parent Spawner Year (t-3)	Northern	North-Central	South-Central	Jack Survival Rate (t-1)	OCN Adult Survival Rate	Marine Survival Category	Parental Spawner Category	Maximum Allowable Impacts	Marine Survival Category[b/c/]	Parental Spawner Category	Maximum Allowable Impacts
1998	1995	3,900	13,600	36,500	0.04%	-	Low	Very Low	≤10-13%	Extremely Low	Very Low	≤8%
1999	1996	3,300	18,100	52,600	0.10%	-	Med	Very Low	≤15%	Low	Critical	0-8%
2000	1997	2,100	2,800	18,400	0.12%	-	Med	Very Low	≤15%	Low	Critical	0-8%
2001	1998	2,600	3,300	25,900	0.27%	-	Med	Very Low	≤15%	Medium	Critical	0-8%
2002	1999	8,900	11,800	29,200	0.09%	-	Med	Low	≤15%	Low	Low	≤15%
2003	2000	17,900	14,300	36,500	0.20%	-	Med	Low	≤15%	Med	Low	≤15%
2004	2001	33,500	25,200	112,000	0.14%	-	Med	Low	≤15%	Med	Low	≤15%
2005	2002	52,500	104,000	104,100	0.11%	-	Med	High	≤20%	Low	High	≤15%
2006	2003	59,600	68,900	99,800	0.12%	-	Med	High	≤20%	Low	High	≤15%
2007	2004	28,800	42,100	101,900	0.17%	-	Med	Med	≤20%	Med	Med	≤20%
2008	2005	16,500	51,400	86,700	0.07%	-	Low	High	≤15%	Extremely Low	High	≤8%
2009	2006	24,100	21,200	83,500	0.27%	-	Med	Low	≤15%	Med	Low	≤15%
2010	2007	17,500	12,300	36,500	0.12%	-	Med	Low	≤15%	Low	Low	≤15%
2011	2008	25,600	68,100	86,000	0.12%	-	Med	High	≤20%	Low	High	≤15%
2012	2009	48,100	86,400	128,200	0.09%	-	Med	High	≤20%	Low	High	≤15%
2013	2010	55,000	56,500	171,900	0.14%	6.8%	Med	High	≤20%	Med	High	≤30%
2014	2011	45,900	119,100	191,300	0.26%	7.1%	Med	High	≤20%	Med	High	≤30%
2015	2012	7,500	33,800	57,800	0.20%	7.5%	Med	Low	≤15%	Med	Low	≤15%
2016	2013	11,000	39,700	73,700	-	-	-	Med	-	-	Med	-
2017	2014	67,600	117,600	159,900	-	-	-	High	-	-	High	-

a/ Developed by the OCN Coho Work Group as a result of the 2000 Review of Amendment 13.

b/ OCN workgroup matrix was modified during the 2012 methodology review. For 2013, the marine survival category is determined by a predicted OCN adult survival rate that is based on th natural smolt to jack relationship at Mill Creek in the Yaquina River basin.

c/ OCN workgroup matrix was modified during the 2013 methodology review. Beginning in 2014, the marine survival category is determined by a predicted OCN adult survival rate that is based on biologic and oceanographic indicators.

CHAPTER VI: REFERENCES

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APPENDIX A
SUMMARY OF COUNCIL STOCK MANAGEMENT GOALS

LIST OF TABLES

LIST OF FIGURES

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TABLE A-1. Conservation objectives and reference points governing harvest control rules and status determination criteria for salmon stocks and stock complexes.[a/] (Page 1 of 7)

CHINOOK					
Stocks In The Fishery	**Conservation Objective**	S_{MSY}	MSST	MFMT (F_{MSY})	ACL
Sacramento River Fall Indicator stock for the Central Valley fall (CVF) Chinook stock complex.	122,000-180,000 natural and hatchery adult spawners (MSY proxy adopted 1984). This objective is intended to provide adequate escapement of natural and hatchery production for Sacramento and San Joaquin fall and late-fall stocks based on habitat conditions and average run-sizes as follows: Sacramento River 1953-1960; San Joaquin River 1972-1977 (ASETF 1979; PFMC 1984; SRFCRT 1994). The objective is less than the estimated basin capacity of 240,000 spawners (Hallock 1977), but greater than the 118,000 spawners for maximum production estimated on a basin by basin basis before Oroville and Nimbus Dams (Reisenbichler 1986).	122,000	91,500	78% Proxy (SAC 2011a)	Based on F_{ABC} and annual ocean abundance. F_{ABC} is F_{MSY} reduced by Tier 2 (10%) uncertainty
Sacramento River Spring ESA Threatened	NMFS ESA consultation standard/recovery plan: Conform to Sacramento River Winter Chinook ESA consultation standard (no defined objective for ocean management prior to listing).	Undefined	Undefined	Undefined	ESA consultation standard applies.
Sacramento River Winter ESA Endangered	NMFS ESA consultation standard/recovery plan: Recreational seasons: Point Arena to Pigeon Point between the first Saturday in April and the second Sunday in November; Pigeon Point to the U.S./Mexico Border between the first Saturday in April and the first Sunday in October. Minimum size limit ≥ 20 inches total length. Commercial seasons: Point Arena to the U.S./Mexico border between May 1 and September 30, except Point Reyes to Point San Pedro between October 1 and 15 (Monday through Friday). Minimum size limit ≥ 26 inches total length. In addition to these season and minimum size limit restrictions, annual limits to the preseason-predicted age-3 impact rate south of Point Arena, defined by a control rule, were implemented beginning in 2012 (See Figure A-3).	Undefined	Undefined	Undefined	
California Coastal Chinook ESA Threatened	NMFS ESA consultation standard/recovery plan: Limit ocean fisheries to no more than a 16.0% age-4 ocean harvest rate on Klamath River fall Chinook.	Undefined	Undefined	Undefined	
Klamath River Fall Indicator stock for the Southern Oregon Northern California (SONC) Chinook stock complex.	At least 32% of potential adult natural spawners, but no fewer than 40,700 naturally spawning adults in any one year. Brood escapement rate must average at least 32% over the long-term, but an individual brood may vary from this range to achieve the required tribal/nontribal annual allocation. Natural area spawners to maximize catch estimated at 40,700 adults (STT 2005).	40,700	30,525	71% (STT 2005)	Based on F_{ABC} and annual ocean abundance. F_{ABC} is F_{MSY} reduced by Tier 1 (5%) uncertainty
Klamath River - Spring	Undefined	Undefined	Undefined	Undefined	Component stock of SONC complex; ACL indicator stock is KRFC
Smith River	Undefined	Undefined	Undefined	78% Proxy (SAC 2011a)	
Southern Oregon	At least 41,000 naturally-produced adults passing Huntley Park in the Rogue River to provide MSY spawning escapement. (PFMC 2015)	34,992	20,500	54% (PFMC 2015)	

TABLE A-1. Conservation objectives and reference points governing harvest control rules and status determination criteria for salmon stocks and stock complexes.[a/] (Page 2 of 7)

CHINOOK						
Stocks In The Fishery	**Conservation Objective**		S_{MSY}	MSST	MFMT (F_{MSY})	ACL
Central and Northern Oregon	Unspecified portion of an aggregate 150,000 to 200,000 natural adult spawners for Oregon coast (Thompson 1977 and McGie 1982) measured by 60-90 fish per mile in index streams. ODFW developing specific conservation objectives for spring and fall stocks that may be implemented without plan amendment upon approval by the Council.		60 Fish per mile in index streams	30 Fish per mile in index streams	78% Proxy (SAC 2011a)	Component stock(s) of FNMC complex; international exception applies, ACLs are not applicable
Willapa Bay Fall	Undetermined in FMP. WDFW spawning escapement objective of 4,350.		3,393	1,697	78% Proxy (SAC 2011a)	
Grays Harbor Fall Indicator stock for the Far North Migrating Coastal (FNMC) Chinook stock complex	13,326 natural adult spawners in the Chehalis and Humptulips Rivers combined. (PFMC 2015)	Annual natural spawning escapement targets may vary from FMP conservation objectives if agreed to by WDFW and treaty tribes under the provisions of *Hoh v. Baldrige* and subsequent U.S. District Court orders.	13,326	6,663	63% (PFMC 2015)	FNMC complex; international exception applies, ACLs are not applicable..
Queets Fall Indicator stock for the FNMC Chinook stock complex	Manage terminal fisheries for 40% harvest rate, but no less than 2,500 natural adult spawners, the MSY level estimated by Cooney (1984).		2,500	1,250	87% (Cooney 1984)	
Hoh Fall Indicator stock for the FNMC Chinook stock complex	Manage terminal fisheries for 40% harvest rate, but no less than 1,200 natural adult spawners, the MSY level estimated by Cooney (1984).		1,200	600	90% (Cooney 1984)	
Quillayute Fall Indicator stock for the FNMC Chinook stock complex	Manage terminal fisheries for 40% harvest rate, but no less than 3,000 natural adult spawners, the MSY level estimated by Cooney (1984).		3,000	1,500	87% (Cooney 1984)	
Hoko Summer/Fall Indicator stock for the FNMC Chinook stock complex	850 natural adult spawners, the MSP level estimated by Ames and Phinney (1977). May include adults used for supplementation program.		850	425	78% Proxy (SAC 2011a)	
Grays Harbor Spring	1,400 natural adult spawners.		1,092	546	78% Proxy (SAC 2011a)	FNMC complex; international exception applies, ACLs are not applicable.
Queets Sp/Su	Manage terminal fisheries for 30% harvest rate, but no less than 700 natural adult spawners.		700	350	78% Proxy (SAC 2011a)	
Hoh Spring/Summer	Manage terminal fisheries for 31% harvest rate, but no less than 900 natural adult spawners.		900	450	78% Proxy (SAC 2011a)	
Quillayute Spring/Summer	1,200 natural adult spawners for summer component (MSY).		1,200	600	78% Proxy (SAC 2011a)	
Willapa Bay Fall (hatchery)	8,200 adult return to hatchery. WDFW spawning escapement objective of 9,800 hatchery spawners.		Not applicable to hatchery stocks			
Quinault Fall (hatchery)	Hatchery production.					

TABLE A-1. Conservation objectives and reference points governing harvest control rules and status determination criteria for salmon stocks and stock complexes.[a/] (Page 3 of 7)

CHINOOK					
Stocks In The Fishery	**Conservation Objective**	S_{MSY}	MSST	MFMT (F_{MSY})	ACL
North Lewis River Fall	NMFS consultation standard/recovery plan. McIsaac (1990) stock-recruit analysis supports MSY objective of 5,700 natural adult spawners.	5,700	ESA consultation standard applies.	76%	ESA consultation standard applies.
Snake River Fall	NMFS consultation standard/recovery plan. No more than 70.0% of 1988-1993 base period AEQ exploitation rate for all ocean fisheries.	Undefined		Undefined	
Upper Willamette Spring	NMFS consultation standard/recovery plan. Not applicable for ocean fisheries.	Undefined		Undefined	
Columbia Upper River Spring	NMFS consultation standard/recovery plan. Not applicable for ocean fisheries.	Undefined		Undefined	
Snake River - Spring/Summer	NMFS consultation standard/recovery plan. Not applicable for ocean fisheries.	Undefined		Undefined	
Columbia Lower River Hatchery - Fall	14,500 adults for hatchery egg-take. River mouth goal of 25,000.	Not applicable to hatchery stocks			
Columbia Lower River Hatchery Spring	2,700 adults to meet Cowlitz, Kalama, and Lewis Rivers broodstock needs.				
Columbia Mid-River Bright Hatchery Fall	7,000 for Little White Salmon Hatchery egg-take.				
Columbia Spring Creek Hatchery Fall	<7,000 adults to meet hatchery egg-take goal.				
Columbia Upper River Bright Fall	40,000 natural bright adults above McNary Dam (MSY proxy adopted in 1984 based on CRFMP). The management goal has been increased to 60,000 by Columbia River managers in recent years.	39,625 (Langness and Reidinger 2003)	19,812	85.91% (Langness and Reidinger 2003)	International exception applies, ACLs are not applicable.
Columbia Upper River Summer	Hold ocean fishery impacts at or below base period; recognize CRFMP objective - MSY proxy of 80,000 to 90,000 adults above Bonneville Dam, including both Columbia and Snake River stocks (state and tribal management entities considering separate objectives for these stocks).	12,143 (CTC 1999)	6,071	75% (CTC 1999)	

TABLE A-1. Conservation objectives and reference points governing harvest control rules and status determination criteria for salmon stocks and stock complexes.[a/] (Page 4 of 7)

CHINOOK						
Stocks In The Fishery	**Conservation Objective**		S_{MSY}	MSST	MFMT (F_{MSY})	ACL
Eastern Strait of Juan de Fuca Summer/Fall	NMFS consultation standard/recovery plan. No more than 10.0% Southern U.S. (SUS) Rebuilding Exploitation Rate (RER) for the Elwha River and for the Dungeness River. 2011 comanagers Resource Management Plan (RMP)	Annual natural spawning escapement targets may vary from FMP conservation objectives if agreed to by WDFW and treaty tribes under the provisions of U.S. v. Washington and subsequent U.S. District Court orders.	Undefined	ESA consultation standard applies	Undefined	ESA Consultation standard applies.
Skokomish Summer/Fall	NMFS consultation standard/recovery plan. No more than 50.0% total RER. 2011 comanagers RMP		Undefined		Undefined	
Mid Hood Canal Summer/Fall	NMFS consultation standard/recovery plan. No more than 15.0% preterminal SUS CERC. 2011 comanagers RMP		Undefined		Undefined	
Nooksack Spring early	NMFS consultation standard/recovery plan. No more than 7.0% SUS CERC. 2011 comanagers RMP		Undefined		Undefined	
Skagit Summer/Fall	NMFS consultation standard/recovery plan. No more than 50.0% total RER. 2011 comanagers RMP		Undefined		Undefined	
Skagit Spring	NMFS consultation standard/recovery plan. No more than 38.0% total RER. 2011 comanagers RMP		Undefined		Undefined	
Stillaguamish Summer/Fall	NMFS consultation standard/recovery plan. No more than 25.0% total RER. 2011 comanagers RMP		Undefined		Undefined	
Snohomish Summer/Fall	NMFS consultation standard/recovery plan. No more than 15.0% SUS RER. 2011 comanagers RMP		Undefined		Undefined	
Cedar River Summer/Fall	NMFS consultation standard/recovery plan. No more than 20.0% SUS RER. 2011 comanagers RMP		Undefined		Undefined	
White River Spring	NMFS consultation standard/recovery plan. No more than 20.0% total RER. 2011 comanagers RMP		Undefined		Undefined	
Green River Summer/Fall	NMFS consultation standard/recovery plan. No more than 15.0% preterminal SUS RER, at least 5,800 adult spawners.		Undefined		Undefined	
Nisqually River Summer/Fall	NMFS consultation standard/recovery plan. No more than 65.0% total RER. 2011 comanagers RMP		Undefined		Undefined	
Puyallup Summer/Fall	NMFS consultation standard/recovery plan. No more than 50.0% total RER. 2011 comanagers RMP		Undefined		Undefined	

TABLE A-1. Conservation objectives and reference points governing harvest control rules and status determination criteria for salmon stocks and stock complexes.[a/] (Page 5 of 7)

COHO					
Stocks In The Fishery	**Conservation Objective**	S_{MSY}	MSST	MFMT (F_{MSY})	ACL
Central California Coast ESA Threatened	NMFS ESA consultation standard/recovery plan: No retention of coho south of the OR/CA border.	Undefined	ESA consultation standard applies	Undefined	ESA consultation standard applies.
Southern Oregon/Northern California Coast ESA Threatened	NMFS ESA consultation standard/recovery plan: No more than a 13.0% AEQ exploitation rate in ocean fisheries on Rogue/Klamath hatchery coho.	Undefined		Undefined	
Oregon Coastal Natural ESA Threatened	NMFS ESA consultation standard/recovery plan: Total AEQ exploitation rate limit based on parental seeding level and marine survival matrix in FMP Table 3-2.	Undefined		Undefined	
Lower Columbia Natural ESA Threatened	NMFS ESA consultation standard/recovery plan: AEQ exploitation rate limit on ocean and mainstem Columbia fisheries indentified in annual NMFS guidance.	Undefined		Undefined	
Oregon Coast Hatchery	Hatchery production.	Not applicable to hatchery stocks			
Columbia River Late Hatchery	Hatchery rack return goal of 6,300 adults. River mouth goal of 8,800.				
Columbia River Early Hatchery	Hatchery rack return goal of 21,800 adults. River mouth goal of 41,200.				
Willapa Bay - Hatchery	Hatchery rack return goal of 6,100 adults.				
Quinault - Hatchery	Hatchery production.				
Quillayute - Summer Hatchery	Hatchery production.				
South Puget Sound Hatchery	Hatchery rack return goal of 52,000 adults.				
Willapa Bay Natural	17,200 natural area spawners.	17,200	8,600	74%	Based on F_{ABC} and annual ocean abundance. F_{ABC} is F_{MSY} reduced by Tier 1 (5%) uncertainty

TABLE A-1. Conservation objectives and reference points governing harvest control rules and status determination criteria for salmon stocks and stock complexes.[a/] (Page 6 of 7)

COHO						
Stocks In The Fishery	**Conservation Objective**		S_{MSY}	MSST	MFMT (F_{MSY})	ACL
Grays Harbor	35,400 natural adult spawners (MSP based on WDF [1979])	Annual natural spawning escapement targets may vary from FMP conservation objectives if agreed to by WDFW and treaty tribes under the provisions of Hoh v. Baldrige, U.S. v. Washington, or subsequent U.S. District Court orders	24,426 S_{MSP} (FMP) *F_{SMY} (SAC 2010b)	18,320 (Johnstone et al. 2011)	MFMT=65% (Johnstone et al. 2011) F_{MSY}=69% (SAC 2011b)	International exception applies, ACLs are not applicable.
Queets	MSY range of 5,800 to 14,500 natural adult spawners (Lestelle et al 1984)		5,800 (Johnston et al. 2011)	4,350 (Johnstone et al. 2011)	MFMT=65% (Johnstone et al. 2011) F_{MSY}=68% (SAC 2011b)	
Hoh	MSY range of 2,000 to 5,000 natural adult spawners (Lestelle et al. 1984)		2,520 (SAC 2010b)	1,890 S_{MSY}*0.75	MFMT=65% (Johnstone et al. 2011) F_{MSY}=69% (SAC 2011b)	
Quillayute - Fall	MSY range of 6,300 to 15,800 natural adult spawners (Lestelle et al. 1984)		6,300 (Johnston et al. 2011)	4,725 (Johnstone et al. 2011)	MFMT=59%; F_{MSY}=59% (SAC 2011b)	
Strait of Juan de Fuca	Total allowable MSY exploitation rate of: 0.60 for ocean age-3 abundance > 27,445; 0.40 for ocean age-3 abundance >11,679 and ≤27,445; 0.20 for ocean age-3 abundance ≤11,679		11,000 (Bowhay et al. 2009)	7,000 (Bowhay et al. 2009)	60% (Bowhay et al. 2009)	
Hood Canal	Total allowable MSY exploitation rate of: 0.65 for ocean age-3 abundance > 41,000; 0.45 for ocean age-3 abundance >19,545 and ≤41,000; 0.20 for ocean age-3 abundance ≤19,545		14,350 (Bowhay et al. 2009)	10,750 (Bowhay et al. 2009)	65% (Bowhay et al. 2009)	
Skagit	Total allowable MSY exploitation rate of: 0.60 for ocean age-3 abundance > 62,500; 0.35 for ocean age-3 abundance >22,857 and ≤62,500; 0.20 for ocean age-3 abundance ≤22,857		25,000 (Bowhay et al. 2009)	14,857 (Bowhay et al. 2009)	60% (Bowhay et al. 2009)	
Stillaguamish	Total allowable MSY exploitation rate of: 0.50 for ocean age-3 abundance > 20,000; 0.35 for ocean age-3 abundance >9,385 and ≤20,000; 0.20 for ocean age-3 abundance ≤9,385		10,000 (Bowhay et al. 2009)	6,100 (Bowhay et al. 2009)	50% (Bowhay et al. 2009)	
Snohomish	Total allowable MSY exploitation rate of: 0.60 for ocean age-3 abundance > 125,000; 0.40 for ocean age-3 abundance >51,667 and ≤125,000; 0.20 for ocean age-3 abundance ≤51,667		50,000 (Bowhay et al. 2009)	31,000 (Bowhay et al. 2009)	60% (Bowhay et al. 2009)	

TABLE A-1. Conservation objectives and reference points governing harvest control rules and status determination criteria for salmon stocks and stock complexes.[a/] (Page 7 of 7)

PINK (odd-numbered years)					
Stocks In The Fishery	**Conservation Objective**	S_{MSY}	MSST	MFMT (F_{MSY})	ACL
Puget Sound	900,000 natural spawners or consistent with provisions of the Pacific Salmon Treaty (Fraser River Panel).	900,000	450,000	Undefined	International exception applies, ACLs are not applicable.

a/ Some hatchery goals and ESA consultation standards have been updated relative to the version of this table in the FMP.

TABLE A-2. Allowable fishery impact rate criteria for OCN coho stock components under the Salmon Fishery Management Plan Amendment 13.

PARENT SPAWNER STATUS	MARINE SURVIVAL INDEX (based on return of jacks per hatchery smolt) Low (<0.0009)	Medium (0.0009 to 0.0034)	High (>0.0034)
	Allowable Total Fishery Impact Rate		
High: Parent spawners achieved Level #2 rebuilding criteria; grandparent spawners achieved Level #1	≤15%	≤30% [a/]	≤35% [a/]
Medium: Parent spawners achieved Level #1 or greater rebuilding criteria	≤15%	≤20% [a/]	≤25% [a/]
Low: Parent spawners less than Level #1 rebuilding criteria	≤15%	≤15%	≤15%
	≤10-13% [b/]		

Rebuilding Criteria	OCN Coho Spawners by Stock Component: Northern	North-Central	South-Central	Southern	Total
Full Seeding at Low Marine Survival:	21,700	55,000	50,000	5,400	132,100
Level #2 (75% of full seeding):	16,400	41,300	37,500	4,100	99,300
Level #1 (50% of full seeding):	10,900	27,500	25,000	2,700	66,100
38% of Level #1 (19% of full seeding):	4,100	10,500	9,500	1,000	25,100

Stock Component (Boundaries)	Full Seeding of Major Basins at Low Marine Survival (Number of Adult Spawners)				
Northern:	Nehalem	Tillamook	Nestucca	Ocean Tribs.	
(Necanicum River to Neskowin Creek)	17,500	2,000	1,800	400	
North-Central:	Siletz	Yaquina	Alsea	Siuslaw	Ocean Tribs.
(Salmon River to Siuslaw River)	4,300	7,100	15,100	22,800	5,700
South-Central:	Umpqua	Coos	Coquille	Coastal Lakes	
(Siltcoos River to Sixes River)	29,400	7,200	5,400	8,000	
Southern:	Rogue				
(Elk River to Winchuck River)	5,400				

a/ When a stock component achieves a medium or high parent spawner status under a medium or high marine survival index, but a major basin within the stock component is less than 10% of full seeding, (1) the parent spawner status will be downgraded one level to establish the allowable fishery impact rate for that component, and (2) no coho-directed harvest impacts will be allowed within that particular basin.

b/ This exploitation rate criteria applies when (1) parent spawners are less than 38% of the Level #1 rebuilding criteria, or (2) marine survival conditions are projected to be at an extreme low as in 1994-1996 (<0.0006 jack per hatchery smolt). If parent spawners decline to lower levels than observed through 1998, rates of less than 10% would be considered, recognizing that there is a limit to further bycatch reduction opportunities.

TABLE A-3. Fishery impact rate criteria for OCN coho stock components based on the harvest matrix resulting from the OCN work group 2000 review of Amendment 13.

Parent Spawner Status [a/]	Marine Survival Index (based on return of jacks per hatchery smolt)			
	Extremely Low (<0.0008)	**Low** (0.0008 to 0.0014)	**Medium** (>0.0014 to 0.0040)	**High** (>0.0040)
High Parent Spawners > 75% of full seeding	E ≤ 8%	J ≤ 15%	O ≤ 30%	T ≤ 45%
Medium Parent Spawners > 50% & ≤ 75% of full seeding	D ≤ 8%	I ≤ 15%	N ≤ 20%	S ≤ 38%
Low Parent Spawners > 19% & ≤ 50% of full seeding	C ≤ 8%	H ≤ 15%	M ≤ 15%	R ≤ 25%
Very Low Parent Spawners > 4 fish per mile & ≤ 19% of full seeding	B ≤ 8%	G ≤ 11%	L ≤ 11%	Q ≤ 11%
Critical [b/] Parental Spawners ≤ 4 fish per mile	A 0 - 8%	F 0 - 8%	K 0 - 8%	P 0 - 8%

Sub-aggregate and Basin Specific Spawner Criteria Data

Sub-aggregate	Miles of Available Spawning Habitat	100% of Full Seeding	"Critical"		Very Low, Low, Medium & High		
			4 Fish per Mile	12% of Full Seeding	19% of Full Seeding	50% of Full Seeding	75% of full Seeding
Northern	899	21,700	3,596	NA	4,123	10,850	16,275
North - Central	1,163	55,000	4,652	NA	10,450	27,500	41,250
South - Central	1,685	50,000	6,740	NA	9,500	25,000	37,500
Southern	450	5,400	NA	648	1,026	2,700	4,050
Coastwide Total	4,197	132,100	15,636		25,099	66,050	99,075

a/ Parental spawner abundance status for the OCN aggergate assumes the status of the weakest sub-aggregate.

b/ "Critical" parental spawner status is defined as 4 fish per mile for the Northern, North-Central, and South-Central subaggergates. Because the ratio of high quality spawning habitat to total spawning habitat in the Rogue River Basin differs significantly from the rest of the basins on the coast, the spawner density of 4 fish per mile does not represent "Critical" status for that basin. Instead. "Critical" status for the Rogue Basin (Southern Sub-aggergate) is estimated as 12% of full seeding of high quality

TABLE A-4. Fishery impact rate criteria for OCN coho stock components based on the harvest matrix resulting from the OCN work group 2000 review of Amendment 13 including modifications to the marine survival index adopted during the 2012 and 2013 methodology reviews.

Parent Spawner Status[a/]	**Marine Survival Index** *(Wild adult coho salmon survival as predicted by the two-variable GAM ensemble forecast)*			
	Extremely Low *<2%*	**Low** *2%-4.5%*	**Medium** *>4.5%-8%*	**High** *>8%*
High Parent Spawners > 75% of full seeding	E ≤ 8%	J ≤ 15%	O ≤ 30%	T ≤ 45%
Medium Parent Spawners > 50% & ≤ 75% of full seeding	D ≤ 8%	I ≤ 15%	N ≤ 20%	S ≤ 38%
Low Parent Spawners > 19% & ≤ 50% of full seeding	C ≤ 8%	H ≤ 15%	M ≤ 15%	R ≤ 25%
Very Low Parent Spawners > 4 fish per mile & ≤ 19% of full seeding	B ≤ 8%	G ≤ 11%	L ≤ 11%	Q ≤ 11%
Critical Parent Spawners ≤4 fish per mile	A 0 – 8%	F 0 – 8%	K 0 – 8%	P 0 – 8%

Sub-aggregate and Basin Specific Spawner Criteria Data

Sub-aggregate	Miles of Available Spawning Habitat	100% of Full Seeding	"Critical"		Very Low, Low, Medium & High		
			4 Fish per Mile	12% of Full Seeding	19% of Full Seeding	50% of Full Seeding	75% of Full Seeding
Northern	899	21,700	3,596	NA	4,123	10,850	16,275
North-Central	1,163	55,000	4,652	NA	10,450	27,500	41,250
South-Central	1,685	50,000	6,740	NA	9,500	25,000	37,500
Southern *(Removed per adoption of Amendment 16)*							
Coastwide Total	*3,747*	*126,700*	*14,988*		*24,073*	*63,350*	*95,025*

a/ Parental spawner abundance status for the OCN aggregate assumes the status of the weakest sub-aggregate.

TABLE A-5. Council adopted management objectives for Puget Sound natural coho management units, expressed as exploitation rate ceilings for critical, low and normal abundance based status categories, with runsize breakpoints (abundances expressed as ocean-age 3).

Status	Management Unit				
	Strait of Juan de Fuca	Hood Canal	Skagit	Stillaguamish	Snohomish
Critical/Low runsize breakpoint	11,679	19,545	22,857	9,385	51,667
Critical exploitation rate	0.20	0.20	0.20	0.20	0.20
Low/normal runsize breakpoint	27,445	41,000	62,500	20,000	125,000
Low exploitation rate	0.40	0.45	0.35	0.35	0.40
Normal exploitation rate	0.60	0.65	0.60	0.50	0.60

TABLE A-6. Council recommended management objectives for Lower Columbia River natural tule Chinook, expressed as exploitation rate ceilings for abundance based status categories, with runsize forecast bins expressed as adult river mouth return forecasts of Lower Columbia River hatchery tule Chinook.

Runsize Forecast Bins	<30,000	30,000 to 40,000	40,000 to 85,000	>85,000
Maximum Exploitation Rate	0.30	0.35	0.38	0.41

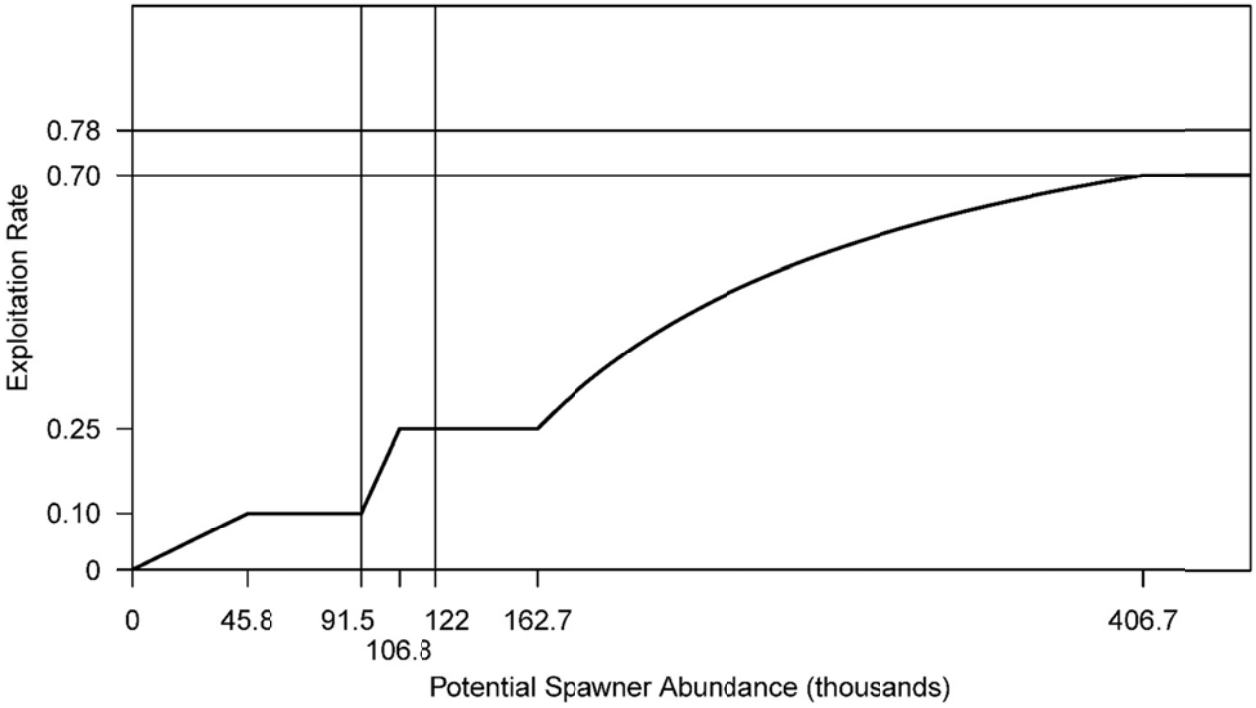

FIGURE A-1. Sacramento River fall Chinook control rule. Potential spawner abundance is the predicted hatchery and natural area adult spawners in the absence of fisheries, which is equivalent to the Sacramento Index. See the salmon FMP, Section 3.3.6, for control rule details.

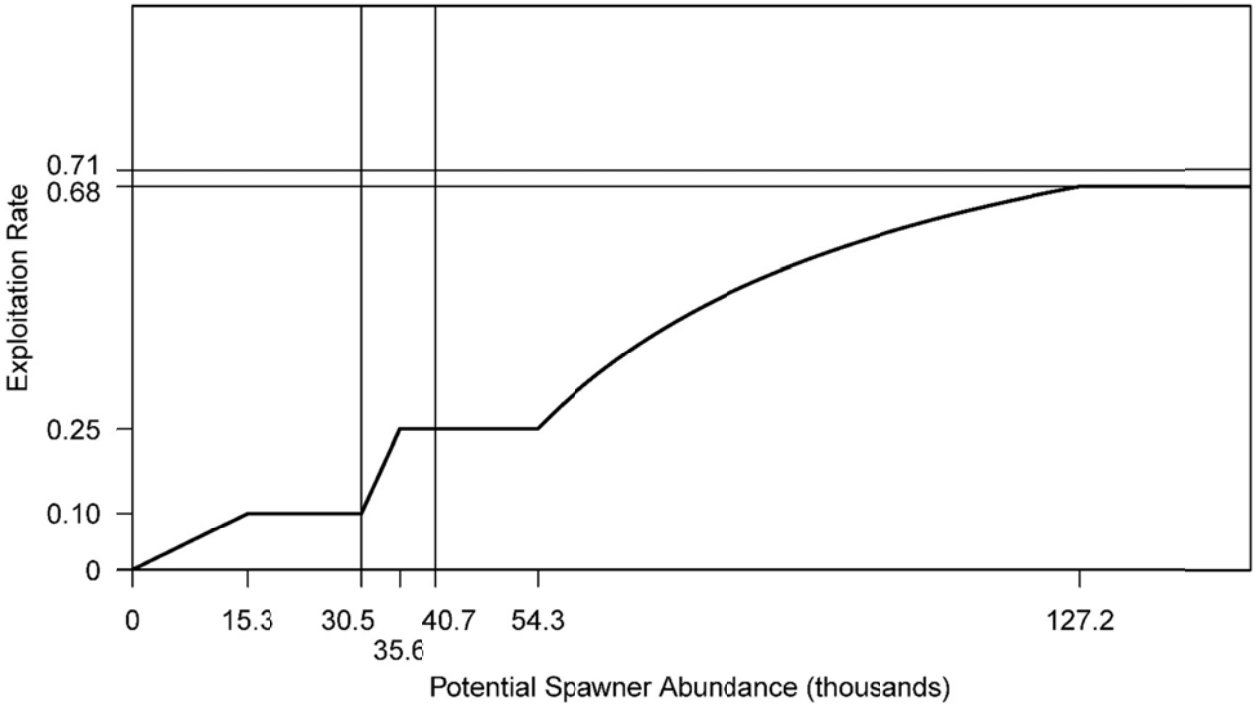

FIGURE A-2. Klamath River fall Chinook control rule. Potential spawner abundance is the predicted natural area adult spawners in the absence of fisheries. See the salmon FMP, Section 3.3.6, for control rule details.

SACRAMENTO RIVER WINTER CHINOOK CONTROL RULE

The first component of the SRWC consultation standard consists of time/area/fishery closure and size limit provisions described in Chapter II and Table A-1.

The second component of the SRWC consultation standard is a control rule that specifies the maximum forecast age-3 impact rate for the area south of Point Arena, California, as a function of the geometric mean of escapement from the most recent three years. This control rule is depicted in Figure A-3, and a description follows.

When the three-year geometric mean of spawner escapement is in excess of 5,000, a maximum forecast age-3 impact rate is not specified and the consultation standard reduces to only the first component. When the three-year geometric mean is between 4,000 and 5,000, the maximum forecast age-3 impact rate is 0.20. Between 3-year geometric mean values of 4,000 and 500, the maximum forecast age-3 impact rate decreases linearly from 0.20 to 0.10. Finally, at 3-year geometric mean spawner levels less than 500, the maximum forecast age-3 impact rate is zero.

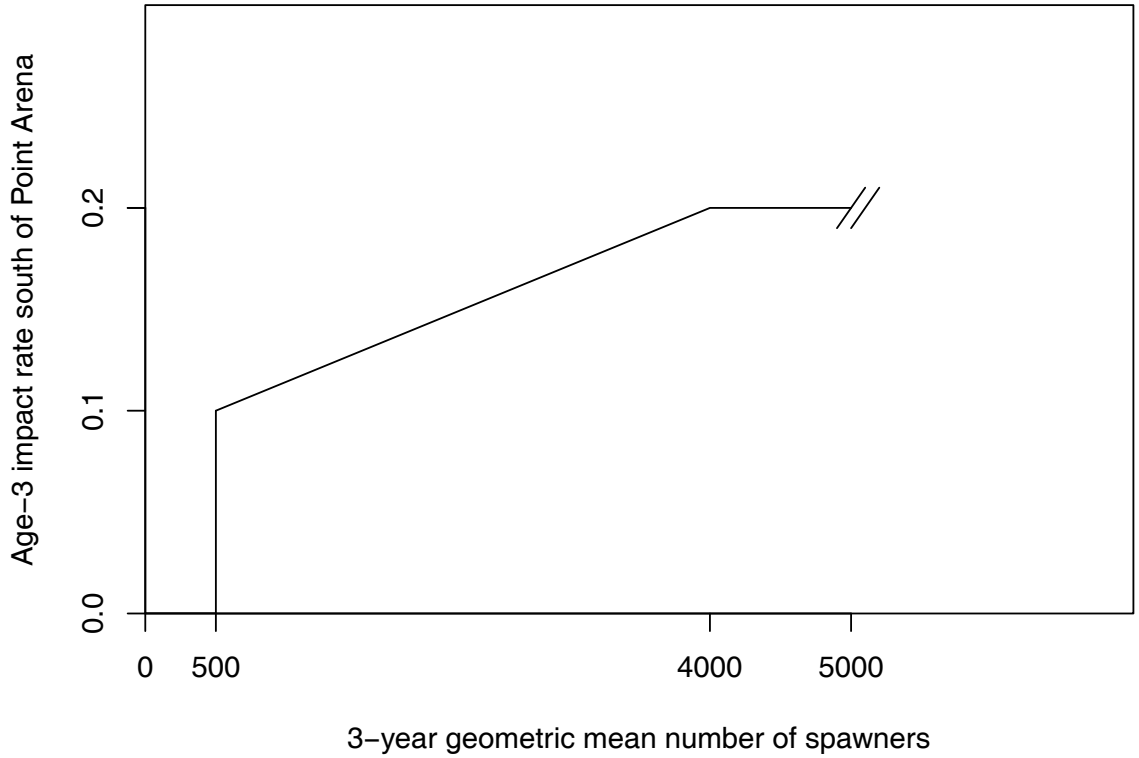

FIGURE A-3. Sacramento River winter Chinook impact rate control rule; maximum forecast age-3 impact rate for the area south of Point Arena, California, as a function of the geometric mean of escapement from the most recent three years.

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APPENDIX B
SALMON HARVEST ALLOCATION SCHEDULES

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5.3 ALLOCATION

> *"" Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges."*
>
> *Magnuson-Stevens Act, National Standard 4*

Harvest allocation is required when the number of fish is not adequate to satisfy the perceived needs of the various fishing industry groups and communities, to divide the catch between non-Indian ocean and inside fisheries and among ocean fisheries, and to provide Federally recognized treaty Indian fishing opportunity. In allocating the resource between ocean and inside fisheries, the Council considers both in-river harvest and spawner escapement needs. The magnitude of in-river harvest is determined by the states in a variety of ways, depending upon the management area. Some levels of in-river harvests are designed to accommodate federally recognized in-river Indian fishing rights, while others are established to allow for non-Indian harvests of historical magnitudes. Several fora exist to assist this process on an annual basis. The North of Cape Falcon Forum, a state and tribal sponsored forum, convenes the pertinent parties during the Council's preseason process to determine allocation and conservation recommendations for fisheries north of Cape Falcon. The individual states also convene fishery industry meetings to coordinate their input to the Council.

5.3.1 Commercial (Non-Tribal) and Recreational Fisheries North of Cape Falcon

5.3.1.1 Goal, Objectives, and Priorities

Harvest allocations will be made from a total allowable ocean harvest, which is maximized to the largest extent possible but still consistent with PST and treaty-Indian obligations, state fishery needs, and spawning escapement requirements, including consultation standards for stocks listed under the ESA. The Council shall make every effort to establish seasons and gear requirements that provide troll and recreational fleets a reasonable opportunity to catch the available harvest. These may include single-species directed fisheries with landing restrictions for other species.

The goal of allocating ocean harvest north of Cape Falcon is to achieve, to the greatest degree possible, the objectives for the commercial and recreational fisheries as follows:

- Provide recreational opportunity by maximizing the duration of the fishing season while minimizing daily and area closures and restrictions on gear and daily limits.

- Maximize the value of the commercial harvest while providing fisheries of reasonable duration.

The priorities listed below will be used to help guide establishment of the final harvest allocation while meeting the overall commercial and recreational fishery objectives.

At total allowable harvest levels up to 300,000 coho and 100,000 Chinook:

- Provide coho to the recreational fishery for a late June through early September all-species season. Provide Chinook to allow (1) access to coho and, if possible, (2) a minimal Chinook-only fishery prior to the all-species season. Adjust days per week and/or institute area restrictions to stabilize season duration.

- Provide Chinook to the troll fishery for a May and early June Chinook season and provide coho to (1) meet coho hooking mortality in June where needed and (2) access a pink salmon fishery in odd years. Attempt to ensure that part of the Chinook season will occur after June 1.

At total allowable harvest levels above 300,000 coho and above 100,000 Chinook:

- Relax any restrictions in the recreational all-species fishery and/or extend the all-species season beyond Labor Day as coho quota allows. Provide Chinook to the recreational fishery for a Memorial Day through late June Chinook-only fishery. Adjust days per week to ensure continuity with the all-species season.

- Provide coho for an all-salmon troll season in late summer and/or access to a pink fishery. Leave adequate Chinook from the May through June season to allow access to coho.

5.3.1.2 Allocation Schedule Between Gear Types

Initial commercial and recreational allocation will be determined by the schedule of percentages of total allowable harvest as follows:

TABLE 5-1. Initial commercial/recreational harvest allocation schedule north of Cape Falcon.

Coho			Chinook		
Harvest (thousands of fish)	Percentage[a/]		Harvest (thousands of fish)	Percentage[a/]	
	Troll	Recreational		Troll	Recreational
0-300	25	75	0-100	50	50
>300	60	40	>100-150	60	40
			>150	70	30

a/ The allocation must be calculated in additive steps when the harvest level exceeds the initial tier.

This allocation schedule should, on average, allow for meeting the specific fishery allocation priorities described above. The initial allocation may be modified annually by preseason and inseason trades to better achieve (1) the commercial and recreational fishery objectives and (2) the specific fishery allocation priorities. The final preseason allocation adopted by the Council will be expressed in terms of quotas, which are neither guaranteed catches nor inflexible ceilings. Only the total ocean harvest quota is a maximum allowable catch.

To provide flexibility to meet the dynamic nature of the fisheries and to assure achievement of the allocation objectives and fishery priorities, deviations from the allocation schedule will be allowed as provided below and as described in Section 6.5.3.2 for certain selective fisheries.

1. Preseason species trades (Chinook and coho) that vary from the allocation schedule may be made by the Council based upon the recommendation of the pertinent recreational and commercial SAS representatives north of Cape Falcon. The Council will compare the socioeconomic impacts of any such recommendation to those of the standard allocation schedule before adopting the allocation that best meets FMP management objectives.

2. Inseason transfers, including species trades of Chinook and coho, may be permitted in either direction between recreational and commercial fishery allocations to allow for uncatchable fish in one fishery to be reallocated to the other. Fish will be deemed "uncatchable" by a respective commercial or recreational fishery only after considering all possible annual management actions to allow for their

harvest which meet framework harvest management objectives, including single species or exclusive registration fisheries. Implementation of inseason transfers will require (1) consultation with the pertinent recreational and commercial SAS members and the STT, and (2) a clear establishment of available fish and impacts from the transfer.

3. An exchange ratio of four coho to one Chinook shall be considered a desirable guideline for preseason trades. Deviations from this guideline should be clearly justified. Inseason trades and transfers may vary to meet overall fishery objectives. (The exchange ratio of four coho to one Chinook approximately equalizes the species trade in terms of average ex-vessel values of the two salmon species in the commercial fishery. It also represents an average species catch ratio in the recreational fishery.)

4. Any increase or decrease in the recreational or commercial total allowable catch (TAC), resulting from an inseason restructuring of a fishery or other inseason management action, does not require reallocation of the overall north of Cape Falcon non-Indian TAC.

5. The commercial TACs of Chinook and coho derived during the preseason allocation process may be varied by major subareas (i.e., north of Leadbetter Point and south of Leadbetter Point) if there is a need to do so to decrease impacts on weak stocks. Deviations in each major subarea will generally not exceed 50 percent of the TAC of each species that would have been established without a geographic deviation in the distribution of the TAC. Deviation of more than 50 percent will be based on a conservation need to protect weak stocks and will provide larger overall harvest for the entire fishery north of Cape Falcon than would have been possible without the deviation. In addition, the actual harvest of coho may deviate from the initial allocation as provided in Section 6.5.3.2 for certain selective fisheries.

6. The recreational TACs of Chinook and coho derived during the preseason allocation process will be distributed among four major recreational port areas as described for coho and Chinook distribution in Section 5.3.1.3. The Council may deviate from subarea quotas (1) to meet recreational season objectives based on agreement of representatives of the affected ports and/or (2) in accordance with Section 6.5.3.2 with regard to certain selective fisheries. Additionally, based on the recommendations of the SAS members representing the ocean sport fishery north of Cape Falcon, the Council will include criteria in its preseason salmon management recommendations to guide any inseason transfer of coho among the recreational subareas to meet recreational season duration objectives. Inseason redistributions of quotas within the recreational fishery or the distribution of allowable coho catch transfers from the commercial fishery may deviate from the preseason distribution.

5.3.1.3 Recreational Subarea Allocations

Coho

The north of Cape Falcon preseason recreational TAC of coho will be distributed to provide 50 percent to the area north of Leadbetter Point and 50 percent to the area south of Leadbetter Point. The distribution of the allocation north of Leadbetter point will vary, depending on the existence and magnitude of an inside fishery in Area 4B, which is served by Neah Bay.

In years with no Area 4B fishery, the distribution of coho north of Leadbetter Point (50 percent of the total recreational TAC) will be divided to provide 74 percent to the area between Leadbetter Point and the Queets River (Westport), 5.2 percent to the area between Queets River and Cape Flattery (La Push), and 20.8 percent to the area north of the Queets River (Neah Bay). In years when there is an Area 4B (Neah Bay) fishery under state management, the allocation percentages north of Leadbetter Point will be modified to maintain more equitable fishing opportunity among the ports by decreasing the ocean harvest

share for Neah Bay. This will be accomplished by adding 25 percent of the numerical value of the Area 4B fishery to the recreational TAC north of Leadbetter Point prior to calculating the shares for Westport and La Push. The increase to Westport and La Push will be subtracted from the Neah Bay ocean share to maintain the same total harvest allocation north of Leadbetter Point. Table 5-2 displays the resulting percentage allocation of the total recreational coho catch north of Cape Falcon among the four recreational port areas (each port area allocation will be rounded to the nearest hundred fish, with the largest quotas rounded downward if necessary to sum to the TAC).

TABLE 5-2. Percentage allocation of total allowable coho harvest among the four recreational port areas north of Cape Falcon.[a/]

Port Area	Without Area 4B Add-on	With Area 4B Add-on	
Columbia River	50.0%	50.0%	
Westport	37.0%	37.0%	plus 17.3% of the Area 4B add-on
La Push	2.6%	2.6%	plus 1.2% of the Area 4B add-on
Neah Bay	10.4%	10.4%	minus 18.5% of the Area 4B add on

a/ The Council may deviate from these percentages as described under #6 in Section 5.3.1.2.

TABLE 5-3. Example distributions of the recreational coho TAC north of Leadbetter Point.

Sport TAC North of Cape Falcon	Without Area 4B Add-On				With Area 4B Add-On [a/]					
	Columbia River	Westport	La Push	Neah Bay	Columbia River	Westport	La Push	Neah Bay Ocean	Neah Bay Add-on	Neah Bay Total
50,000	25,000	18,500	1,300	5,200	25,000	19,900	1,400	3,700	8,000	11,700
150,000	75,000	55,500	3,900	15,600	75,000	57,600	4,000	13,600	12,000	25,600
300,000	150,000	111,000	7,800	31,200	150,000	114,500	8,000	27,500	20,000	47,500

a/ The add-on levels are merely examples. The actual numbers in any year would depend on the particular mix of stock abundances and season determinations.

Chinook

Subarea distributions of Chinook will be managed as guidelines and shall be calculated by the STT with the primary objective of achieving all-species fisheries without imposing Chinook restrictions (i.e., area closures or bag limit reductions). Chinook in excess of all-species fisheries needs may be utilized by directed Chinook fisheries north of Cape Falcon or by negotiating a Chinook/coho trade with another fishery sector.

Inseason management actions may be taken by the NMFS NW Regional Administrator to assure that the primary objective of the Chinook harvest guidelines for each of the four recreational subareas north of Cape Falcon are met. Such actions might include: closure from 0 to 3, or 0 to 6, or 3 to 200, or 5 to 200 nautical miles from shore; closure from a point extending due west from Tatoosh Island for 5 miles, then south to a point due west of Umatilla Reef Buoy, then due east to shore; closure from North Head at the Columbia River mouth north to Leadbetter Point; change species that may be landed; or other actions as prescribed in the annual regulations.

5.3.2 Commercial and Recreational Fisheries South of Cape Falcon

The allocation of allowable ocean harvest of coho salmon south of Cape Falcon has been developed to provide a more stable recreational season and increased economic benefits of the ocean salmon fisheries at varying stock abundance levels. When coupled with various recreational harvest reduction measures or the timely transfer of unused recreational allocation to the commercial fishery, the allocation schedule is

designed to help secure recreational seasons extending at least from Memorial Day through Labor Day when possible, assist in maintaining commercial markets even at relatively low stock sizes, and fully utilize available harvest. Total ocean catch of coho south of Cape Falcon will be treated as a quota to be allocated between troll and recreational fisheries as provided in Table 5-4.

(Note: The allocation schedule provides guidance only when coho abundance permits a directed coho harvest, not when the allowable impacts are insufficient to allow coho retention south of Cape Falcon. At such low levels, allocation of the allowable impacts will be accomplished during the Council's preseason process.)

TABLE 5-4. Allocation of allowable ocean harvest of coho salmon (thousands of fish) south of Cape Falcon.[a/]

Total Allowable Ocean Harvest	Recreational Allocation		Commercial Allocation	
	Number	Percentage	Number	Percentage
≤100	≤100[b/c/]	100[b/]	b/	b/
200	167[b/c/]	84[b/]	33[b/]	17[b/]
300	200	67	100	33
350	217	62	133	38
400	224	56	176	44
500	238	48	262	52
600	252	42	348	58
700	266	38	434	62
800	280	35	520	65
900	290	32	610	68
1,000	300	30	700	70
1,100	310	28	790	72
1,200	320	27	880	73
1,300	330	25	970	75
1,400	340	24	1,060	76
1,500	350	23	1,150	77
1,600	360	23	1,240	78
1,700	370	22	1,330	78
1,800	380	21	1,420	79
1,900	390	21	1,510	79
2,000	400	20	1,600	80
2,500	450	18	2,050	82
3,000	500	17	2,500	83

a/ The allocation schedule is based on the following formula: first 150,000 coho to the recreational base (this amount may be reduced as provided in footnote b); over 150,000 to 350,000 fish, share at 2:1, 0.667 to troll and 0.333 to recreational; over 350,000 to 800,000 the recreational share is 217,000 plus 14% of the available fish over 350,000; above 800,000 the recreational share is 280,000 plus 10% of the available fish over 800,000.
Note: The allocation schedule provides guidance only when coho abundance permits a directed coho harvest, not when the allowable impacts are insufficient to allow general coho retention south of Cape Falcon. At such low levels, allocation of the allowable impacts will be determined in the Council=s preseason process. Deviations from the allocation may also be allowed to meet consultation standards for ESA-listed stocks (e.g., the 1998 biological opinion for California coastal coho requires no retention of coho in fisheries off California).
b/ If the commercial allocation is insufficient to meet the projected hook-and-release mortality associated with the commercial all-salmon-except-coho season, the recreational allocation will be reduced by the number needed to eliminate the deficit.
c/ When the recreational allocation is 167,000 coho or less, special allocation provisions apply to the recreational harvest distribution by geographic area (unless superseded by requirements to meet a consultation standard for ESA-listed stocks); see text of FMP as modified by Amendment 11 allocation provisions.

The allocation schedule is designed to give sufficient coho to the recreational fishery to increase the probability of attaining no less than a Memorial Day to Labor Day season as stock sizes increase. This increased allocation means that, in many years, actual catch in the recreational fishery may fall short of its allowance. In such situations, managers will make an inseason reallocation of unneeded recreational coho to the south of Cape Falcon troll fishery. The reallocation should be structured and timed to allow the commercial fishery sufficient opportunity to harvest any available reallocation prior to September 1, while still assuring completion of the scheduled recreational season (usually near mid-September) and, in any event, the continuation of a recreational fishery through Labor Day. This reallocation process will occur no later than August 15 and will involve projecting the recreational fishery needs for the remainder of the summer season. The remaining projected recreational catch needed to extend the season to its scheduled closing date will be a harvest guideline rather than a quota. If the guideline is met prior to Labor Day, the season may be allowed to continue if further fishing is not expected to result in any considerable danger of impacting the allocation of another fishery or of failing to meet an escapement goal.

The allocation schedule is also designed to assure there are sufficient coho allocated to the troll fishery at low stock levels to ensure a full Chinook troll fishery. This hooking mortality allowance will have first priority within the troll allocation. If the troll allocation is insufficient for this purpose, the remaining number of coho needed for the estimated incidental coho mortality will be deducted from the recreational share. At higher stock sizes, directed coho harvest will be allocated to the troll fishery after hooking mortality needs for Chinook troll fishing have been satisfied.

The allowable harvest south of Cape Falcon may be further partitioned into subareas to meet management objectives of the FMP. Allowable harvests for subareas south of Cape Falcon will be determined by an annual blend of management considerations including:

1. abundance of contributing stocks
2. allocation considerations of concern to the Council
3. relative abundance in the fishery between Chinook and coho
4. escapement goals
5. maximizing harvest potential

Troll coho quotas may be developed for subareas south of Cape Falcon consistent with the above criteria. California recreational catches of coho, including projections of the total catch to the end of the season, would be included in the recreational allocation south of Cape Falcon, but the area south of the Oregon-California border would not close when the allocation is met; except as provided below when the recreational allocation is at 167,000 or fewer fish.

When the south of Cape Falcon recreational allocation is equal to or less than 167,000 coho:

1. The recreational fisheries will be divided into two major subareas, as listed in #2 below, with independent quotas (i.e., if one quota is not achieved or is exceeded, the underage or overage will not be added to or deducted from the other quota; except as provided under #3 below).

2. The two major recreational subareas will be managed within the constraints of the following impact quotas, expressed as a percentage of the total recreational allocation (percentages based on avoiding large deviations from the historical harvest shares):

    a. Central Oregon (Cape Falcon to Humbug Mountain) - 70%

    b. South of Humbug Mountain - 30%

In addition,

(1) Horse Mountain to Point Arena will be managed for an impact guideline of 3 percent of the south of Cape Falcon recreational allocation, and

(2) there will be no coho harvest constraints south of Point Arena. However, the projected harvest in this area (which averaged 1,800 coho from 1986-1990) will be included in the south of Humbug Mountain impact quota.

3. Coho quota transfers can occur on a one-for-one basis between subareas if Chinook constraints preclude access to coho.

5.3.3 Tribal Indian Fisheries

5.3.3.1 California

On October 4, 1993 the Solicitor, Department of Interior, issued a legal opinion in which he concluded that the Yurok and Hoopa Valley Indian tribes of the Klamath River Basin have a federally protected right to the fishery resource of their reservations sufficient to support a moderate standard of living or 50 percent of the total available harvest of Klamath-Trinity basin salmon, whichever is less. The Secretary of Commerce recognized the tribes' federally reserved fishing right as applicable law for the purposes of the MSA (58 FR 68063, December 23, 1993). The Ninth Circuit Court of Appeals upheld the conclusion that the Hoopa Valley and Yurok tribes have a federally reserved right to harvest fish in Parravano v. Babbitt and Brown, 70 F.3d 539 (1995) (Cert. denied in Parravano v. Babbitt and Brown 110, S.Ct 2546 [1996]). The Council must recognize the tribal allocation in setting its projected escapement level for the Klamath River.

5.3.3.2 Columbia River

Pursuant to a September 1, 1983 Order of the U.S. District Court, the allocation of harvest in the Columbia River was established under the "Columbia River Fish Management Plan" which was implemented in 1988 by the parties of U.S. v. Oregon. This plan replaced the original 1977 plan (pages 16-20 of the 1978 FMP). Since the Columbia River Fishery Management Plan expired on December 31, 1998, fall Chinook in Columbia River fisheries were managed through 2007 under the guidance of annual management agreements among the U.S. v. Oregon parties. In 2008, a new 10 year management agreement was negotiated through the U.S. v. Oregon process, which included revisions to some in-river objectives. This most recent plan is the "2008-2017 U.S. v Oregon Management Agreement". The plan provides a framework within which the relevant parties may exercise their sovereign powers in a coordinated and systematic manner in order to protect, rebuild, and enhance upper Columbia River fish runs while providing harvest for both treaty Indian and non-Indian fisheries. The parties to the agreement are the United States, the states of Oregon, Washington, and Idaho, and four Columbia River treaty Indian tribes-Warm Springs, Yakama, Nez Perce, and Umatilla.

5.3.3.3 U.S. v. Washington Area

Treaty Indian tribes have a legal entitlement to the opportunity to take up to 50 percent of the harvestable surplus of stocks which pass through their usual and accustomed fishing areas. The treaty Indian troll harvest which would occur if the tribes chose to take their total 50 percent share of the weakest stock in the ocean, is computed with the current version of the Fishery Regulation Assessment Model (FRAM), assuming this level of harvest did not create conservation or allocation problems on other stocks. A quota may be established in accordance with the objectives of the relevant treaty tribes concerning allocation of the treaty Indian share to ocean and inside fisheries. The total quota does not represent a guaranteed ocean harvest, but a maximum allowable catch.

The requirement for the opportunity to take up to 50 percent of the harvestable surplus determines the treaty shares available to the inside/outside Indian and all-citizen fisheries. Ocean coho harvest ceilings off the Washington coast for treaty Indians and all-citizen fisheries are independent within the constraints that (1) where feasible, conservation needs of all stocks must be met; (2) neither group precludes the other from the opportunity to harvest its share, and; (3) allocation schemes may be established to specify outside/inside sharing for various stocks.

6.5 SEASONS AND QUOTAS

For each management area or subarea, the Council has the option of managing the commercial and recreational fisheries for either coho or Chinook using the following methods: (1) fixed quotas and seasons; (2) adjustable quotas and seasons; and (3) seasons only. The Council may also use harvest guidelines within quotas or seasons to trigger inseason management actions established in the preseason regulatory process.

Quotas provide very precise management targets and work best when accurate estimates of stock abundance and distribution are available, or when needed to ensure protection of depressed stocks from potential overfishing. The Council does not view quotas as guaranteed harvests, but rather the maximum allowable harvest, which assures meeting the conservation objective of the species or stock of concern. While time and area restrictions are not as precise as quotas, they allow flexibility for effort and harvest to vary in response to abundance and distribution.

6.5.1 Preferred Course of Action

Because of the need to use both seasons and quotas, depending on the circumstances, the Council will make the decision regarding seasons and quotas annually during the preseason regulatory process, subject to the limits specified below. Fishing seasons and quotas also may be modified during the season as provided under Section 10.2.

6.5.2 Procedures for Calculating Seasons

Seasons will be calculated using the total allowable ocean harvest determined by procedures described in Chapter 5, and further allocated to the commercial and recreational fishery in accordance with the allocation plan presented in Section 5.3, and after consideration of the estimated amount of effort required to catch the available fish, based on past seasons.

Recreational seasons will be established with the goal of encompassing Memorial Day and/or Labor Day weekends in the season, if feasible. Opening dates will be adjusted to provide reasonable assurance that the recreational fishery is continuous, minimizing the possibility of an in-season closure.

Criteria used to establish commercial seasons, in addition to the estimated allowable ocean harvests, the allocation plan, and the expected effort during the season, will be: (1) bycatch mortality; (2) size, poundage, and value of fish caught; (3) effort shifts between fishing areas; (4) harvest of pink salmon in odd-numbered years; and (5) protection for weak stocks when they frequent the fishing areas at various times of the year.

6.5.3 Species-Specific and Other Selective Fisheries

6.5.3.1 Guidelines

In addition to the all-species and single or limited species seasons established for the commercial and recreational fisheries, other species-limited fisheries, such as "ratio" fisheries and fisheries selective for marked or hatchery fish, may be adopted by the Council during the preseason regulatory process. In adopting such fisheries, the Council will consider the following guidelines:

1. Harvestable fish of the target species are available.

2. Harvest impacts on incidental species will not exceed allowable levels determined in the management plan.

3. Proven, documented, selective gear exists (if not, only an experimental fishery should be considered).

4. Significant wastage of incidental species will not occur or a written economic analysis demonstrates the landed value of the target species exceeds the potential landed value of the wasted species.

5. The selective fishery will occur in an acceptable time and area where wastage can be minimized and target stocks are maximally available.

6. Implementation of selective fisheries for marked or hatchery fish must be in accordance with U.S. v. Washington stipulation and order concerning co-management and mass marking (Case No. 9213, Subproceeding No. 96-3) and any subsequent stipulations or orders of the U.S. District Court, and consistent with international objectives under the PST (e.g., to ensure the integrity of the coded-wire tag program).

6.5.3.2 Selective Fisheries Which May Change Allocation Percentages North of Cape Falcon

As a tool to increase management flexibility to respond to changing harvest opportunities, the Council may implement deviations from the specified port area allocations and/or gear allocations to increase harvest opportunity through mark-selective fisheries. The benefits of any mark-selective fishery will vary from year to year and fishery to fishery depending on stock abundance, the mix of marked and unmarked fish, projected hook-and-release mortality rates, and public acceptance. These factors should be considered on an annual and case-by-case basis when utilizing mark-selective fisheries. The deviations for mark-selective fisheries are subordinate to the allocation priorities in Section 5.3.1.1 and may be allowed under the following management constraints:

1. Mark-Selective fisheries will first be considered during the months of May and/or June for Chinook and July through September for coho. However, the Council may consider mark-selective fisheries at other times, depending on year to year circumstances identified in the preceding paragraph.

2. The total impacts within each port area or gear group on the critical natural stocks of management concern are not greater than those under the original allocation without the mark-selective fisheries.

3. Other allocation objectives (i.e., treaty Indian, or ocean and inside allocations) are satisfied during negotiations in the North of Cape Falcon Forum.

4. The mark-selective fishery is assessed against the guidelines in Section 6.5.3.1.

5. Mark-selective fishery proposals need to be made in a timely manner in order to allow sufficient time for analysis and public comment on the proposal before the Council finalizes its fishery recommendations.

If the Council chooses to deviate from specified port and/or gear allocations, the process for establishing a mark-selective fishery would be as follows:

1. Allocate the TAC among the gear groups and port areas according to the basic FMP allocation process described in Section 5.3.1 without the mark-selective fishery.

2. Each gear group or port area may utilize the critical natural stock impacts allocated to its portion of the TAC to access additional harvestable, marked fish, over and above the harvest share established in step one, within the limits of the management constraints listed in the preceding paragraph.

6.5.4 Procedures for Calculating Quotas

Quotas will be based on the total allowable ocean harvest and the allocation plan as determined by the procedures of Chapter 5.

To the extent adjustable quotas are used, they may be subject to some or all of the following inseason adjustments:

1. For coho, private hatchery contribution to the ocean fisheries in the OPI area.

2. Unanticipated loss of shakers (bycatch mortality of undersized fish or unauthorized fish of another species that have to be returned to the water) during the season. (Adjustment for coho hooking mortality during any all-salmon-except-coho season will be made when the quotas are established.)

3. Any catch that take place in fisheries within territorial waters that are inconsistent with federal regulations in the EEZ.

4. If the ability to update inseason stock abundance is developed in the future, adjustments to total allowable harvest could be made, where appropriate.

5. The ability to redistribute quotas between subareas depending on the performance toward achieving the overall quota in the area.

Changes in the quotas as a result of the inseason adjustment process will be avoided unless the changes are of such magnitude that they can be validated by the STT and Council, given the precision of the original estimates.

The basis for determining the private hatchery contribution in (1) above will be either coded-wire tag analysis or analysis of scale patterns, whichever is determined by the STT to be more accurate, or another more accurate method that may be developed in the future, as determined by the STT and Council.

In reference to (4) and (5) above, if reliable techniques become available for making inseason estimates of stock abundance, and provision is made in any season for its use, a determination of techniques to be applied will be made by the Council through the Salmon Methodology Review process and discussed during the preseason regulatory process.

6.5.5 Procedures for Regulating Ocean Harvests of Pink and Sockeye

Sockeye salmon are only very rarely caught in Council-managed ocean salmon fisheries and no specific procedures have been established to regulate their harvest. Procedures for pink salmon are as follows:

1. All-species seasons will be planned such that harvest of pink salmon can be maximized without exceeding allowable harvests of Chinook and/or coho and within conservation and allocation constraints of the pink stocks.

2. Species specific or ratio fisheries for pink salmon will be considered under the guidelines for species specific fisheries presented in Section 6.5.3, and allocation constraints of the pink stocks.

APPENDIX C
OREGON PRODUCTION INDEX DATA

LIST OF TABLES

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TABLE C-1. Millions of coho smolts[a/] released annually into the OPI area by geographic area and rearing agency.

Year or	Columbia River						Oregon Coast				
		Washington					Private				
Average	Oregon	Early	Late	Combined	Federal	Total	ODFW[b/]	Yearlings	Total	California	Total OPI
1960-1965	5.6	-	-	6.1	4.5	16.2	2.0	-	2.0	0.4	18.6
1966-1970	6.0	10.2	4.9	15.1	6.5	27.6	2.9	0.0	2.9	1.3	31.8
1971-1975	6.8	10.7	6.8	17.5	4.5	28.8	3.9	0.0	3.9	1.2	33.9
1976-1980	8.0	7.3	10.1	17.4	4.7	30.1	3.8	1.4	5.2	0.7	36.0
1981-1985	7.1	4.3	14.4	18.7	3.2	29.0	3.9	3.3	7.2	0.7	36.9
1986-1990	7.3	3.1	15.6	18.7	4.1	30.1	5.2	1.9	7.1	1.4	38.6
1991	10.4	3.7	15.3	19.0	5.9	35.2	5.3	-	5.3	1.5	42.0
1992	11.5	4.3	14.3	18.6	2.7	32.8	6.2	-	6.2	0.7	39.7
1993	11.1	4.3	14.8	19.1	4.1	34.3	4.3	-	4.3	0.8	39.4
1994	9.1	2.5	12.0	14.5	3.0	26.6	5.2	-	5.2	0.6	32.4
1995	7.1	3.4	12.9	16.3	1.7	25.1	3.7	-	3.7	0.7	29.5
1996	8.4	3.4	12.9	16.3	3.4	28.1	3.3	-	3.3	0.3	31.7
1997	6.1	3.2	7.8	11.0	3.9	21.0	2.9	-	2.9	0.7	24.6
1998	6.1	5.8	11.4	17.2	3.6	26.8	1.7	-	1.7	0.6	29.1
1999	7.6	4.0	11.5	15.5	4.8	27.9	1.0	-	1.0	0.7	29.6
2000	7.8	6.2	10.8	17.0	5.9	30.7	0.9	-	0.9	0.6	32.2
2001	7.6	4.2	9.7	13.9	3.7	25.2	0.9	-	0.9	0.6	26.7
2002	7.5	3.3	8.6	11.9	4.3	23.7	1.0	-	1.0	0.6	25.3
2003	8.2	3.3	8.7	12.0	3.1	23.3	0.8	-	0.8	0.5	24.6
2004	6.7	3.0	8.8	11.8	3.6	22.1	0.8	-	0.8	0.6	23.5
2005	6.1	2.5	9.1	11.6	2.8	20.6	0.8	-	0.8	0.6	22.0
2006	6.1	2.8	9.0	11.7	2.6	20.4	0.8	-	0.8	0.6	21.8
2007	6.2	3.1	9.0	12.1	3.1	21.4	0.7	-	0.7	0.6	22.6
2008	6.9	2.8	9.2	12.0	2.9	21.9	0.4	-	0.4	0.5	22.8
2009	6.9	2.5	8.3	10.8	3.2	20.9	0.4	-	0.4	0.6	21.8
2010	5.9	2.0	7.5	9.5	3.1	18.6	0.3	-	0.3	0.5	19.4
2011	5.8	1.8	8.4	10.2	3.0	19.0	0.4	-	0.4	0.5	19.8
2012	5.9	2.2	7.4	9.7	2.7	18.2	0.4	-	0.4	0.6	19.3
2013	6.0	2.0	7.8	9.8	2.9	18.6	0.4	-	0.4	0.6	19.5
2014[c/]	6.5	1.5	7.4	8.9	3.0	18.4	0.4	-	0.4	0.6	19.4

a/ Defined here as 30 fish per pound or larger and released in February or later.

b/ Beginning in 1989, does not include minor releases from STEP projects.

c/ Preliminary.

TABLE C-2. Data set used in predicting Oregon production index hatchery (OPIH) adult coho. Adults and jacks shown in thousands of fish and smolts in millions of fish. (Page 1 of 2)

	Adults (t)		Jacks (t-1)			Columbia River Smolts (t-1)			
			Total OPI[c/]	Columbia River[d/]	OR Coast/ CA[e/]	Total OPI[f/]	Normal Timed[g/]	Delayed[h/]	Delayed Smolt Adjustment[i/]
Year (t)	OPIH[a/]	MSM[b/]							
1970	2,765.1	-	-	-	-	-	-	-	-
1971	3,365.0	-	179.4	172.8	6.6	28.8	24.0	0.0	0.0000
1972	1,924.8	-	103.7	100.8	2.9	33.4	28.3	0.0	0.0000
1973	1,817.0	-	91.4	85.7	5.7	35.3	29.9	1.8	5.1592
1974	3,071.1	-	144.2	132.0	12.1	33.6	28.5	2.9	13.4316
1975	1,652.8	-	76.2	75.1	1.1	32.5	27.8	1.8	4.8626
1976	3,885.3	-	171.5	146.2	25.3	34.0	29.0	2.0	10.0828
1977	987.5	-	53.8	46.3	7.5	33.5	28.9	0.2	0.3204
1978	1,824.1	-	103.2	99.2	4.0	35.5	31.4	0.0	0.0000
1979	1,476.7	-	72.5	64.1	8.4	37.1	32.6	5.0	9.8313
1980	1,224.0	-	57.7	51.6	6.0	34.2	28.9	6.7	11.9626
1981	1,064.5	-	48.7	40.6	8.1	32.3	28.1	5.6	8.0911
1982	1,266.8	-	61.3	55.0	6.3	37.2	32.4	6.8	11.5432
1983[j/]	599.2	-	68.3	61.0	7.2	32.6	27.7	5.0	11.0108
1984	691.3	-	31.6	28.0	3.6	30.9	27.0	5.1	5.2889
1985	717.5	-	26.0	18.2	7.8	34.4	29.2	9.1	5.6719
1986	2,435.8	2,412.0	77.5	64.6	12.9	32.8	28.8	12.2	27.3653
1987	887.2	779.4	32.9	24.2	8.7	39.5	32.9	9.0	6.6201
1988	1,669.3	1,467.8	85.2	72.3	12.9	35.0	28.8	7.7	19.3302
1989	1,720.2	1,922.0	60.8	55.0	5.8	36.0	29.5	7.2	13.4237
1990	718.4	713.6	46.6	37.1	9.6	35.9	29.6	8.5	10.6537
1991	1,874.8	1,816.5	68.6	60.7	7.9	37.2	30.3	7.1	14.2234
1992	543.6	512.6	25.6	19.9	5.7	42.1	35.3	6.0	3.3824
1993	261.7	223.3	27.1	19.6	7.5	38.6	32.8	5.5	3.2866
1994	202.3	214.1	5.2	3.9	1.3	39.5	34.4	6.0	0.6802
1995	147.2	139.4	11.8	9.1	2.7	32.2	26.6	3.1	1.0605
1996	185.2	176.5	17.4	14.1	3.2	29.6	25.2	4.2	2.3500
1997	200.7	195.6	20.4	15.8	4.6	31.5	28.0	3.4	1.9186
1998	207.5	228.3	9.7	6.7	3.0	24.6	21.0	2.5	0.7976
1999	334.5	372.5	29.5	23.6	5.9	29.0	26.8	3.0	2.6418
2000	673.2	673.1	34.8	31.3	3.5	30.2	27.9	4.1	4.5996
2001	1,417.1	1,478.7	87.4	71.7	15.7	32.0	30.6	2.0	4.6863
2002	649.8	689.5	25.2	18.9	6.3	25.0	23.5	1.4	1.1260
2003	936.6	1,009.9	49.9	41.7	8.2	25.3	23.7	0.3	0.5278
2004	622.1	693.6	35.4	29.4	6.0	24.5	23.2	2.0	2.5345
2005	443.2	454.0	25.0	21.2	3.8	23.2	22.0	0.8	0.7709
2006	440.6	523.4	25.9	20.9	5.0	21.8	20.6	0.4	0.4058
2007	476.6	545.3	36.4	34.2	2.2	21.6	20.4	0.1	0.1676
2008	565.3	576.9	16.1	14.9	1.2	22.7	21.4	0.6	0.3925
2009	1,066.2	1,051.0	60.4	58.4	2.0	22.7	21.9	1.1	2.9333

TABLE C-2. Data sets used in predicting Oregon production index hatchery (OPIH) adult coho. Adults and jacks shown in thousands of fish and smolts in millions of fish. (Page 2 of 2)

	Adults (t)		Jacks (t-1)			Columbia River Smolts (t-1)			
			Total OPI[c/]	Columbia River[d/]	OR Coast/ CA[e/]	Total OPI[f/]	Normal Timed[g/]	Delayed[h/]	Delayed Smolt Adjustment[i/]
Year (t)	OPIH[a/]	MSM[b/]							
2010	551.3	546.5	25.2	23.8	1.4	22.3	21.3	0.2	0.2235
2011	442.3	454.2	23.3	22.2	1.1	19.4	18.5	0.3	0.3600
2012	182.3	183.1	17.9	13.9	4.0	19.9	19.0	0.9	0.6584
2013	316.9	314.8	26.3	24.1	2.2	19.2	18.2	1.1	1.4566
2014	1,263.6	1,263.6	51.4	49.4	2.0	19.6	18.6	0.6	1.5935
2015	.	808.4 [k/]	39.8	37.0	2.8	19.4	18.4	1.5	3.0163

a/ Adult OPIH = Harvest impacts plus escapement for public hatchery stocks originating in the Columbia River, Oregon coastal rivers, and the Klamath River, California.
b/ Adult MSM = Harvest impacts plus escapement for public hatchery stocks originating in the Columbia River, Oregon coastal rivers, and the Klamath River. Estimates derived from the MSM and used for prediction beginning in 2008.
c/ Jack OPI = Total Jack CR and Jack OC.
d/ Jack CR = Columbia River jack returns corrected for small adults.
e/ Jack OC = Oregon coastal and California hatchery jack returns corrected for small adults.
f/ Total OPI = Columbia River (Sm D + Sm CR), Oregon coastal and Klamath Basin.
g/ Sm CR = Columbia River smolt releases from the previous year expected to return as adults in the year listed.
h/ Sm D = Columbia River delayed smolt releases from the previous year expected to return as adults in the year listed.
i/ Correction term for delayed smolts released from Col. R. hatcheries (Col. R. Jacks*(Delayed Smolts/Col. R. Smolts)).
j/ Data not used in subsequent predictions due to El Niño impacts.
k/ Preseason predicted adults.

TABLE C-3. Estimated coho salmon natural spawner abundance in Oregon coastal basins for each OCN coho management component.

Component and Basin[a/]	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	1999-2014 Avg.
NORTHERN																	
Necanicum	351	359	4,832	2,047	2,377	2,198	1,218	750	431	1,055	3,827	4,445	2,120	902	798	5,691	2,088
Nehalem	3,555	14,462	21,928	17,164	32,517	18,736	10,451	11,614	14,033	17,205	21,753	32,215	15,322	2,963	4,539	30,577	16,815
Tillamook	1,831	2,178	1,944	13,334	13,008	2,532	1,995	8,774	2,295	4,828	16,251	14,890	19,250	1,686	4,402	16,980	7,886
Nestucca	2,357	1,219	4,164	16,698	10,194	4,695	686	1,876	394	1,844	4,252	1,947	7,857	1,751	946	9,779	4,416
Ind. Tribs.	47	0	71	16	0	661	2,116	1,121	376	639	2,052	1,473	1,341	218	271	4,527	933
TOTAL	8,141	18,218	32,939	49,259	58,096	28,822	16,466	24,135	17,529	25,571	48,135	54,970	45,890	7,520	10,956	67,554	32,138
NORTH CENTRAL																	
Salmon	14	179	225	543	42	1,642	79	513	59	652	753	1,382	3,636	297	1,165	2,805	874
Siletz	1,209	3,387	1,595	2,129	8,038	8,179	14,567	5,205	2,197	20,634	24,070	6,283	33,094	4,495	7,660	18,732	10,092
Yaquina	2,563	637	3,589	23,800	16,484	5,539	3,441	4,247	3,158	10,913	11,182	8,589	19,074	6,268	3,553	26,652	9,356
Beaver Ck.	1,511	1,464	1,832	3,217	5,552	4,569	2,264	1,950	611	1,218	3,575	2,072	2,389	1,878	2,015	6,079	2,637
Alsea	1,341	3,363	3,228	9,073	10,281	5,233	13,907	1,972	2,146	13,320	14,638	9,688	28,337	8,470	9,283	23,660	9,871
Siuslaw	2,980	6,532	10,606	55,445	29,003	8,729	16,907	5,869	3,552	17,491	30,607	25,983	28,082	11,946	14,118	37,387	19,077
Ind. Tribs.	150	91	816	5,308	1,852	8,179	242	1,468	547	3,910	1,610	2,548	4,487	492	1,929	2,285	2,245
TOTAL	9,768	15,653	21,891	99,515	71,252	42,070	51,407	21,224	12,270	68,138	86,435	56,545	119,099	33,846	39,723	117,600	54,152
SOUTH CENTRAL																	
Umpqua	8,576	14,594	35,084	43,504	34,783	29,920	42,532	18,092	11,783	37,868	57,984	70,019	94,655	20,969	27,016	63,476	38,178
Coos	4,818	4,704	33,595	33,120	25,761	23,337	17,048	11,266	1,329	14,881	26,979	27,658	10,999	9,414	6,884	36,907	18,044
Coquille	2,667	6,253	13,833	7,676	22,403	22,138	11,806	28,577	13,968	8,791	22,286	23,564	55,667	5,911	23,637	36,324	19,094
Floras Ck.	670	1,477	5,664	3,272	952	7,446	506	1,104	340	786	3,203	11,329	9,217	2,502	1,936	1,157	3,223
Sixes R.	56	136	95	95	86	403	105	294	97	43	176	92	334	34	567	185	175
Coastal Lakes	12,543	12,747	19,604	21,977	16,076	18,642	14,725	24,127	8,955	23,608	17,349	38,744	20,281	18,922	13,659	21,769	18,983
Ind. Tribs.	-	-	-	-	-	-	-	-	-	0	188	484	101	48	33	122	139
TOTAL	29,330	39,911	107,875	109,644	100,061	101,886	86,722	83,460	36,472	85,977	128,165	171,890	191,254	57,800	73,732	159,940	97,757
SOUTH																	
Rogue[b/]	1,389	10,978	12,015	8,460	6,805	24,509	9,957	3,911	5,136	414	2,566	3,671	4,545	5,474	11,210	2,338	7,086
COASTWIDE	48,628	84,760	174,720	266,878	236,214	197,287	164,552	132,730	71,407	180,100	265,301	287,076	360,788	104,640	135,621	347,432	191,133

a/ The sum of the individual basins may not equal the aggregate totals due to the use of independent estimates at different geographic scales.

b/ Mark recapture estimate based on seining at Huntley Park in the lower Rogue River.

TABLE C-4. Data set used in predicting Oregon coastal natural river (OCNR) coho ocean recruits with random survey sampling and Mixed Stock Model (MSM) accounting. All environmental data in year of ocean entry (t-1) except SST-J, which is January of adult return year (t). Spawners is parent brood (t-3). Recruits shown in thousands of fish.
(Page 1 of 2)

	Recruits		Environmental Index-Month(s)[a/]							
Year (t)	Adults	Spawners	PDO-MJJ	UWI-JAS	UWI-SON	SSH-AMJ	SST-AMJ	SST-J	MEI-ON	SPR.TRN
1970	183.1	204.7	-0.37	41.41	-31.81	-144.07	10.86	-	-1.10	78
1971	416.3	198.9	-1.77	28.96	-16.05	-63.40	11.68	8.58	-1.37	106
1972	185.5	129.2	-1.42	33.79	-8.15	-56.90	11.86	8.34	1.67	107
1973	235.0	51.2	-0.77	41.15	-19.50	-150.23	12.26	9.42	-1.61	80
1974	196.4	65.6	-0.22	33.20	-8.79	-71.10	10.91	9.25	-1.15	102
1975	208.4	24.1	-0.86	38.46	-38.99	-148.30	10.80	9.46	-1.90	83
1976	451.7	37.8	-0.25	22.62	-7.94	-110.43	10.66	9.01	0.71	103
1977	161.2	28.1	0.31	30.15	-34.77	-134.77	11.19	9.77	0.99	74
1978	111.6	34.8	-0.06	16.88	-5.59	-85.93	11.58	11.33	0.09	97
1979	188.8	39.2	0.70	24.03	-58.73	-91.07	11.21	8.67	0.69	73
1980	108.3	13.7	0.40	48.08	-42.72	-63.80	12.07	10.53	0.22	78
1981	174.5	18.2	1.43	28.80	-54.11	-81.30	12.17	11.84	0.02	88
1982	185.7	38.4	-0.26	28.85	-42.97	-68.60	10.96	9.86	2.23	109
1983	96.0	25.6	2.56	26.44	-46.62	-4.93	12.15	11.17	-0.08	126
1984	94.7	30.1	0.43	38.12	-52.44	-63.27	11.42	10.69	-0.17	112
1985	124.9	68.3	0.42	36.91	-12.17	-80.47	10.93	10.00	-0.10	48
1986	114.3	19.4	1.14	38.46	-19.72	-82.10	11.50	10.05	0.93	89
1987	77.8	59.7	1.53	36.07	-34.08	-80.30	11.42	10.62	1.43	81
1988	152.5	66.3	0.86	42.69	-20.23	-62.80	11.48	9.89	-1.40	68
1989	114.9	57.2	0.55	35.53	-4.82	-65.33	11.62	9.40	-0.19	97
1990	63.3	25.3	0.38	42.94	-12.08	-64.10	12.02	9.97	0.31	81
1991	84.1	45.7	-0.69	39.48	-2.08	-110.50	10.90	8.90	1.11	99
1992	107.6	40.7	1.57	36.75	-24.99	-30.40	12.75	10.12	0.64	123
1993	74.9	16.9	2.27	40.86	0.14	59.17	13.29	9.35	0.94	161
1994	41.0	30.4	0.58	39.04	-13.29	-64.33	11.45	11.04	1.36	87
1995	47.8	40.2	1.48	27.53	-25.29	-64.77	11.19	10.58	-0.48	95
1996	64.5	45.2	1.35	56.80	-4.70	-47.50	11.44	11.66	-0.27	120
1997	16.3	38.3	2.31	10.18	-55.94	-14.73	12.10	10.76	2.45	146
1998	22.4	42.8	0.35	49.68	-43.26	-41.47	11.38	12.26	-1.00	105
1999	38.3	60.5	-0.88	51.00	-34.18	-111.10	10.67	9.54	-1.04	91
2000	58.7	14.8	-0.38	35.78	-26.83	-55.00	11.36	10.00	-0.57	72

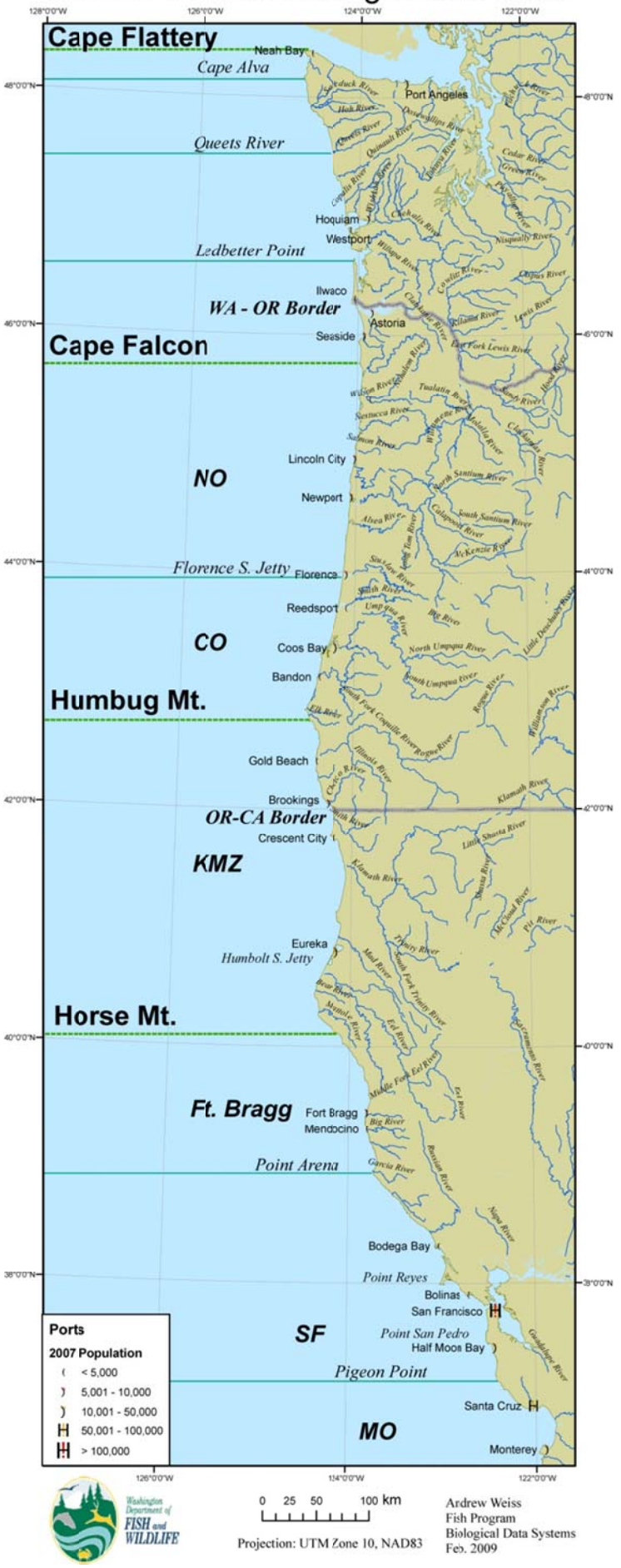
TABLE C-4. Data set used in predicting Oregon coastal natural river (OCNR) coho ocean recruits with random survey sampling and Mixed Stock Model (MSM) accounting. All environmental data in year of ocean entry (t-1) except SST-J, which is January of adult return year (t). Spawners is parent brood (t-3). Recruits shown in thousands of fish. (Page 2 of 2)

	Recruits		Environmental Index-Month(s)[a/]							
Year (t)	Adults	Spawners	PDO-MJJ	UWI-JAS	UWI-SON	SSH-AMJ	SST-AMJ	SST-J	MEI-ON	SPR.TRN
2001	156.5	20.9	-0.69	47.08	-38.19	-124.90	10.68	10.13	-0.22	61.00
2002	246.1	36.4	-0.43	50.49	-25.90	-147.30	10.11	10.07	1.01	80.00
2003	227.3	57.4	0.84	55.48	-26.35	-62.00	11.11	10.96	0.52	112.00
2004	164.0	152.9	0.45	26.99	4.34	-61.13	11.86	10.30	0.64	110.00
2005	146.3	238.4	1.23	51.75	-9.01	-24.07	12.55	10.21	-0.28	145.00
2006	113.1	211.9	0.62	53.57	-14.10	-34.73	11.15	11.46	1.10	112.00
2007	64.8	156.7	0.26	27.53	-9.88	-122.00	10.62	9.85	-1.15	74.00
2008	157.0	139.4	-1.46	32.71	-10.66	-111.47	9.62	8.92	-0.69	89.00
2009	262.9	104.5	-0.57	24.33	-47.08	-94.17	10.45	9.37	1.05	82.00
2010	255.7	57.2	-0.22	34.21	-32.89	-46.60	11.67	10.76	-1.77	100.00
2011	352.5	141.8	-0.97	29.33	-26.30	-44.23	10.69	10.12	-0.96	100.00
2012	98.2	245.4	-1.22	53.55	-29.90	-32.37	11.02	9.18	0.14	121.00
2013	130.0	241.6	-0.65	35.30	-7.81	-104.50	10.66	9.89	0.01	100.00
2014	377.9	271.0	1.11	41.26	-40.11	-28.50	11.17	9.09	0.54	101.00
2015[b/]	188.4	-	-	-	-	-	-	12.31	-	-

a/ Environmental Index descriptions:
PDO - Pacific Decadal Oscillation
UWI - Upwelling wind index (mean upwelling winds index in months of ocean migration year at 42º N 125º W)
SSH - Sea surface height (South Beach, OR at 44º 37.5´ N, 124 º 02.6´ W)
SST - Sea surface temperature (mean sea surface temperature in January of return year at Charleston, OR)
MEI - Multi-variate ENSO index
SPR.TRN - Spring transition date (Julian)

b/ Forecast.

Marine Fisheries Management Zones



ENVIRONMENTAL ASSESSMENT PART 2
FOR 2015
OCEAN SALMON FISHERY
REGULATIONS

REGULATION IDENTIFIER NUMBER 0648-XD843

BASED ON

PRESEASON REPORT II

PROPOSED ALTERNATIVES

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384
(503) 820-2280
www.pcouncil.org

March 2015

PUBLIC HEARINGS ON SALMON ALTERNATIVES

All Hearings Begin at 7 p.m.

Monday, March 30
Chateau Westport
Beach Room
710 W Hancock
Westport, WA 98595
(360) 268-9101

Monday, March 30
Red Lion Hotel
South Umpqua Room
1313 N Bayshore Drive
Coos Bay, OR 97420
(541) 267-4141

Tuesday, March 31
Motel 6
Convention Room
400 S. Main St.
Fort Bragg, CA 95437
(707) 964-4761

Public comment on the Alternatives will also be accepted during the April Council meeting on Saturday, April 11, during the public comment period for Agenda Item D.1 at the DoubleTree by Hilton Sonoma, One Doubletree Drive, Rohnert Park, CA 94928, phone: 707-584-5466. ***Written comments*** *received at the Council office* ***by midnight, on Thursday, April 2, 2015*** *will be distributed to all Council members.*

This document may be cited in the following manner:
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A report of the Pacific Fishery Management Council pursuant to National Oceanic and Atmospheric Administration Award Number FNA10NMF4410014.

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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 (Florence south jetty to Humbug Mt.)
Council	Pacific Fishery Management Council
CPUE	catch per unit effort
CWT	coded-wire tag
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 (the ocean zone between Humbug Mountain and Horse Mountain where management emphasis is on Klamath River fall Chinook)
KRFC	Klamath River fall Chinook
LCN	lower Columbia River natural (coho)
LCR	lower Columbia River (natural tule Chinook)
LRH	lower river hatchery (tule fall Chinook returning to hatcheries below Bonneville Dam)
LRW	Lower Columbia River wild fall Chinook, (bright fall Chinook returning primarily to the North Fork Lewis River).
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)
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)
OPI	Oregon Production Index
OSP	Oregon State Police
OY	optimum yield
PDO	Pacific (inter) Decadal Oscillation

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
RER	rebuilding exploitation rate
RMP	Resource Management Plan
RK	Rogue/Klamath (hatchery coho)
S_{ACL}	annual catch limit spawner abundance
SCH	Spring Creek Hatchery (tule fall Chinook returning to Spring Creek Hatchery)
SEAK	Southeast Alaska
S_{MSY}	MSY spawning escapement
SET	spawning escapement target
SF	San Francisco (Point Arena to Pigeon Point)
SI	Sacramento Index
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
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
WCVI	West Coast Vancouver Island
WDFW	Washington Department of Fish and Wildlife

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1.0 INTRODUCTION

This document has been prepared by the staff of the Pacific Fishery Management Council (Council) and the Salmon Technical Team (STT) to describe the Council's proposed ocean salmon management Alternatives for 2015 and characterize their expected impacts on ocean salmon fisheries and the stocks which 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. Additional comment will be accepted during the April Council meeting at the Hilton Sonoma, One Doubletree Drive, Rohnert Park, California. Written comments received at the Council office by April 2, 2015 will be copied and distributed to all Council members (Council staff cannot assure distribution of comments received after April 2, 2015).

This report also constitutes the second part of an Environmental Assessment (EA) to comply with National Environmental Policy Act (NEPA) requirements for the 2015 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 2015 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 2015b) 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 2015), 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 2015 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, 2014 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 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 significant 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 2015 Council meeting. At this point in the planning cycle, the STT's impact assessments reflect four key assumptions relative to stocks impacted by Canadian and Alaskan fisheries: (1) abundance levels for Canadian Chinook and coho stocks identical to 2014 forecasts; (2)

fishing effort for southeast Alaskan (SEAK), north-central British Columbia, and West Coast Vancouver Island (WCVI) fisheries equal to the levels under the 2014 catch ceilings established under the aggregate abundance based management (AABM) provisions of the 2009 PST Agreement ; (3) minimum size limits identical to those in place for 2014; (4) 2014 preseason fishing effort and size limits for Canadian fisheries operating under individual stock based management (ISBM) regimes pursuant to the 2009 PST Agreement; and (5) base packages for management of Southern U.S. inside fisheries from 2014 fisheries. In mid-March, U.S. and Canadian fishery managers will exchange information regarding preseason expectations for fisheries and the status of Chinook and coho stocks. Following this exchange, the PSC's Chinook Model will be calibrated by the PSC Chinook Technical Committee to determine the allowable catch ceilings under the 2009 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 NMFS.

3.0 SALMON TECHNICAL TEAM CONCERNS

3.1 Need for Landing Requirements

The STT recommends that landing restrictions be employed to require landings within the area where the fish are caught. Unless such restrictions are adopted, fleet mobility increases the difficulty of inseason management by compromising catch accountability and interpretation of biological data such as genetic stock identification (GSI) samples or coded-wire tag (CWT) recoveries.

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 5.

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

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

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

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

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 between commercial and recreational sectors, and among recreational port subareas, and for coho south of Cape Falcon between commercial and recreational sectors. Alternatives for the 2015 salmon management measures adopted by the Council meet the allocation requirements for fisheries north of Cape Falcon in the Salmon FMP. There are insufficient coho available for directed commercial harvest south of Cape Falcon; therefore, the FMP allocation schedule guidance is to determine allocation during the preseason process.

5.0 SPECIES LISTED UNDER THE ENDANGERED SPECIES ACT

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

ESU	Status	Federal Register Notice			
		Most Recent		Original Listing	
Chinook					
Sacramento River Winter	Endangered	76 FR 50447	8/15/2011	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
Low er 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
Chum					
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
Coho					
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
Low er Columbia River	Threatened	76 FR 50448	8/15/2011		
Sockeye					
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)
4/30/2010	Sacramento River winter Chinook (until reinitiated)
4/30/2004	Puget Sound Chinook (until reinitiated)
6/13/2005	California coastal Chinook (until reinitiated)
4/28/2008	Lower Columbia River natural coho (until reinitiated)
4/26/2012	Lower Columbia River 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 March 3, 2015, NMFS provided guidance on protective measures for species listed under the ESA during the 2015 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 2015 management season, as well as further guidance and recommendations for the 2015 management season.

The ESA consultation standards, exploitation rates, and other criteria in place for the 2015 management season are presented in Table 5. 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 a substantive impacts on Sacramento River winter Chinook (SRWC), Central Valley spring Chinook, California coastal Chinook, Snake River wild (SRW) fall Chinook, lower Columbia River (LCR) fall Chinook, and all of the coho stocks. Additional listed salmonid ESUs found within the Council area, but not substantively impacted by Council managed fisheries, include:

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

6.1 Chinook Salmon Management

A new agreement under the PST was negotiated in 2008 and formally accepted by both the U.S. and Canada in December of 2008. This new agreement took effect on January 1, 2009, and includes a 30 percent reduction in the catch ceilings for AABM fisheries off the West Coast Vancouver Island and a 15 percent reduction in the catch ceilings for AABM fisheries in Southeast Alaska Chinook relative to the catch ceilings in effect for these fisheries since 1999. Under the terms of the 2009 PST Agreement, Council fisheries for Chinook salmon continue to be subject to the ISBM provisions of Annex 4, Chapter 3, adopted in 1999. These provisions require the combined adult equivalent (AEQ) exploitation rate by all U.S. fisheries south of the U.S./Canada border be reduced by 40 percent from the 1979-1982 base period for a specified set of Chinook indicator stocks, substantively impacted in U.S. ISBM fisheries, if they do not achieve their management objectives.

Many Chinook stocks of concern to the Council are affected by fisheries off Canada and Alaska. Maximum allowable catches by AABM fishery complexes off the WCVI, Northern British Columbia, and Southeast Alaska are determined through the annual calibration of the PSC Chinook Model. Canadian fisheries that are not included in AABM complexes are managed under ISBM constraints, which require a 36.5 percent reduction in AEQ exploitation rates relative to the 1979-1982 base period on specified Chinook indicator stocks that do not achieve their management objectives. Expectations for Canadian and Alaskan fisheries harvest and stock abundance forecasts are incorporated into the Chinook Fishery Regulation Assessment Model (FRAM) to estimate total exploitation rate impacts from all marine fisheries (Table 5).

Key considerations for Canadian domestic fishery management for Chinook in 2015 include, (1) meeting domestic conservation obligations for WCVI, Strait of Georgia, and Fraser River spring stocks; (2) Chinook harvests by native fisheries; and (3) 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 will be driven by levels of allowable impact on WCVI and Lower Strait of Georgia Chinook and Interior Fraser (Thompson River) coho.

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 2002 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 2002 PST Southern Coho Management Plan. Categorical status is employed by the PSC under the 2002 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 2002 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 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 Washington coastal coho management units, a range is reported for the allowable exploitation rates based on the relationship between the pre-season abundance forecast and the upper and lower values of the spawning escapement ranges corresponding to MSY production. Maximum exploitation rates are computed using the lower end of the escapement range and minimum exploitation rates are computed using the upper end of the escapement range. For purposes of reporting the categorical status, an allowable exploitation rate is computed using the mid-point of the MSY escapement range. However, the maximum allowable exploitation rate allowed under the PST is 65 percent.

For 2015, Puget Sound and Washington coast coho constraints are as follows:

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

PST Southern Coho Management Plan		
U.S. Management Unit	Total Exploitation Rate Constraint[b/]	Categorical Status[c/]
Skagit	60%	Abundant
Stillaguamish	50%	Abundant
Snohomish	60%	Abundant
Hood Canal	65%	Abundant
Strait of Juan de Fuca	20%	Low
Quillayute Fall[c/]		Low
Hoh[c/]		Moderate
Queets[c/]		Low
Grays Harbor		Abundant

a/ Preliminary. For Puget Sound stocks, the exploitation rate constraints and categorical status (Normal, Low, Critical) reflect application of Comprehensive Coho Agreement rules, as adopted in the FMP. For Washington Coast stocks, exploitation rate constraints represent MFMT. Note that under *U.S. v. Washington* and *Hoh v. Baldrige* case law, the management objectives can differ from FMP objectives provided there is an annual agreement among the state and tribal comanagers; therefore, the exploitation rates used to report categorical status do not necessarily represent maximum allowable rates for these stocks.
b/ Preliminary. For Puget Sound and Washington Coast management units, the exploitation rate constraints reflect application of the 2002 PST Southern Coho Management Plan.
c/ Categories (Abundant, Moderate, Low) correspond to the general exploitation rate ranges depicted in paragraph 3(a) of the 2002 PST Southern Coho Management Plan. For Washington Coast stocks, categorical status is determined by taking the midpoint of the range of exploitation rates associated with achieving the escapement goal ranges. The exploitation rate ranges are based on preseason abundance forecasts and the upper and lower ends of the escapement goal ranges. Maximum exploitation rates are computed using the lower end of the escapement range; minimum exploitation rates are computed using the upper end of the escapement range.

Key considerations for Canadian fishery management for coho in 2015 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 previous 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. The projected status of Canadian coho management units in 2015 indicates continuing concerns for the condition of Interior Fraser coho. Absent a large sockeye forecast this year, the Interior Fraser coho management unit is anticipated to remain in low status, resulting in a requirement to constrain the total mortality fishery exploitation rate for 2015 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). Significant changes from recent seasons are highlighted below.

7.1 Commercial

Alternatives for the area north of Cape Falcon reflect a lower relative total abundance of Chinook but higher abundance of Spring Creek Hatchery Chinook and coho compared to 2014. In 2015, allowable catch of Chinook will likely be similar to 2014 due to a higher relative abundance of Spring Creek Hatchery Chinook, similar expected impacts in northern fisheries, and a total exploitation rate limit identical to 2014. Coho catch quotas will be lower than in 2014 due to slightly less abundant lower Columbia hatchery coho and lower abundance of Queets natural coho.

Two Alternatives north of Cape Falcon assign two-thirds of the troll Chinook quota to the May-June Chinook directed fishery; Alternative I assigns 60 percent to the May-June Chinook directed fishery and 40 percent to the summer all-species fishery. In Alternative I, the May-June fishery opens initially seven days per week with no landing and possession limit but with sub-quotas in the area north of the Queets River and in the area south of Leadbetter Point. In Alternative II, the fishery opens seven days per week with a weekly landing and possession limit in the area between Leadbetter Point and Cape Falcon and a sub-quota in the area north of the Queets River, and in Alternative III, the fishery opens five days per week with a coastwide open-period landing and possession limit and no area sub-quotas. The summer all-salmon fisheries for all Alternatives include Chinook and coho landing and possession limits; Chinook sub-quotas apply to the area north of the Queets River in Alternatives I and II. Coho retention regulations are similar to recent years, except that Alternative I includes a possible non-mark-selective period after September 1 if sufficient quota remains.

Commercial fisheries south of Cape Falcon will be constrained by the California coastal Chinook consultation standard under the ESA that limits the KRFC age-4 ocean harvest rate to a maximum of 16 percent and the exploitation rate limit on ESA listed LCR tule Chinook. Fisheries south of Point Arena, California, will also be constrained by the maximum allowable age-3 impact rate of 19.0 percent on ESA listed SRWC. The 2015 forecast of the Sacramento Index (SI) is sufficiently large such that Sacramento River fall Chinook (SRFC) will not constrain fisheries this year.

For the North and Central Oregon coast south of Cape Falcon, all Alternatives for Chinook fisheries open on April 1. The season end date is October 31 in Alternative I. Alternatives II and III include different season end dates in an attempt to avoid fall harvest of KRFC. These include an end date of September 30 under Alternative II and an end date of October 10 and fewer open days in September in Alternative III. Short closures exist between late-August and early-September for all Alternatives.

In the Klamath Management Zone (KMZ), the Oregon portion is open for April and May. Monthly quotas exist for June, July, and August with daily landing and possession limits. The California KMZ has monthly quotas for May through September in Alternative I, a single September quota in Alternative II, and is closed in Alternative III. For both the Oregon and California KMZ, the transfer of unused or exceeded quota to subsequent quota periods through August is allowed on an impact neutral basis.

In the Fort Bragg area the fishery is open for portions of June through September (Alternative I), May through September (Alternative II), and June through August (Alternative III).

In the San Francisco area, the fishery will open on May 1 and generally run through September in Alternatives I and II, and August in Alternative III, with closures in June and July that vary in timing and

duration among the Alternatives. The October fall area target zone fishery from Point Reyes to Point San Pedro is included in Alternatives I and II.

The Monterey area features the same fishing opportunity as the San Francisco area from May through September, with one exception. For Alternative II, the fishery is open for two more days in July than the San Francisco area.

7.2 Recreational

In the area between the U.S./Canada border and the Queets River, Alternatives I and II include Chinook directed mark-selective recreational fisheries in May and June; Alternative III limits the mark-selective Chinook fishery to June. Alternative I includes a Chinook directed mark-selective recreational fishery beginning May 30 in the area between the Queets River and Cape Falcon, while the fishery in that area is limited to June in Alternatives II and III. All Alternatives have an area-wide mark-selective Chinook quota of 10,000.

In all Alternatives, all subareas between the U.S./Canada border and Cape Falcon are open seven days per week. For the Westport subarea, the Grays Harbor Control Zone is closed beginning August 11 in all Alternatives.

For the North and Central Oregon coast south of Cape Falcon, Chinook fisheries open March 15 and run through October. All Alternatives feature a mark-selective coho quota fishery in the summer, including the Oregon KMZ, with quota sizes and opening/closing dates that vary among the Alternatives. A non-mark-selective coho fishery also exists for the Cape Falcon to Humbug Mountain area beginning on September 4 under Alternatives I and II, and September 3 under Alternative III. Non-mark-selective coho quotas are being considered because of the relatively high Oregon Coast natural (OCN) coho and moderate Oregon Production Index (OPI) hatchery coho forecasts, which tend to reduce expected mark rates and increase the number of release mortalities on natural stocks. A modeling run was performed for Alternative I to assess fishery impacts from a potential rollover of coho from the Cape Falcon to Oregon/California border hatchery mark-selective recreational fishery to the Cape Falcon to Humbug Mountain non-mark-selective recreational fishery. Alternative I was modeled as if 11,000 marked coho quota were rolled into the 10,000 non-mark-selective coho quota. The resulting 21,000 non-mark-selective coho quota in this simulation did not result in an increase to the projected impacts for LCN coho, but impacts for OCN coho increased by 2.2 percent for a total marine exploitation rate of 13.4 percent. The primary purpose of this preseason modeling exercise was to quantify the impact of a potential future inseason rollover action to ensure that Alternative I would remain impact neutral on the most limiting stock (LCN coho). The resulting preseason expected marine exploitation rate for OCN coho of 13.4 percent meets the OCN coho ESA consultation standard should any or all of the 11,000 be rolled into the non-mark-selective fishery.

Chinook fishing in both the Oregon and California KMZ starts prior to the Memorial Day weekend and runs through Labor Day. Alternatives I and II allow for longer seasons, beginning earlier in May than Alternative III. Minimum size limits are 24 inches for all Alternatives in the Oregon KMZ and Alternative III in the California KMZ. Alternatives I and II in the California KMZ feature a 20 inch minimum size limit.

South of the KMZ, the season will begin on April 4. In the Fort Bragg area, the closing date is November 8 for Alternatives I and II and September 7 for Alternative III. Alternative III also specifies a 24 inch minimum size limit beginning on May 1 and lasting for the duration of the season. For the San Francisco area, the season closing dates are the same as Fort Bragg, but with a minimum size limit of 24 inches early in the season that transitions to a 20 inch minimum at different points in the season for Alternatives

I and II. Alternative III specifies a 24 inch minimum size limit for the entire season. For the Monterey area, Alternatives I and II specify a closing date of October 4 while Alternative III closes on September 7. Similar to the San Francisco area, the seasons all begin with a 24 inch minimum size limit in April but transition to a 20 inch minimum size limit at different points in the seasons for Alternatives I and II. The minimum size limit in Alternative III is 24 inches for the entire season.

7.3 Treaty Indian

Alternatives are generally similar in structure to 2015, with quotas that are similar or modestly decreased. All Alternatives have the provision that if the Chinook quota for the May-June fishery is exceeded, the excess will be deducted from the later all-salmon season.

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 2015b), 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 2014 Ocean Salmon Fisheries (PFMC 2015a). A more general description of salmon life history and population characteristics is presented in PFMC 2006. The current status (2015 ocean abundance forecasts) of the environmental components expected to be affected by the 2015 ocean salmon fisheries regulation Alternatives (FMP salmon stocks) are described in PFMC 2015b. 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

8.1.1.1 North of Cape Falcon

Abundance projections important to Chinook harvest management north of Cape Falcon in 2015 are:

- *Columbia River hatchery tules*. Combined production of Lower River Hatchery (LRH) and Spring Creek Hatchery (SCH) stocks returning to the Columbia River is predicted to be 255,400, higher than the 2014 preseason expectation of 225,000. The 2015 LRH forecast abundance is 94,900, slightly below the forecast of 110,000 in 2014. The 2015 SCH forecast abundance is 160,500, which is considerably higher than last year's forecast of 115,000.

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 and Columbia Lower River Wild (LRW) fall Chinook.

Fishery quotas under the Alternatives are presented in Table 4. Stock-specific management criteria and their forecast values under the Alternatives are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality under the Alternatives are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCR natural tule 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 Alternative 1 exploitation rate of 41.5 percent exceeds the 41.0 percent NMFS consultation standard maximum for all fisheries. The exploitation rates in Alternatives II and III are less than the maximum, assuming river fisheries are structured similarly to last year. Additional shaping of PSC fisheries prior to the April Council meeting may result in Alternative I reaching compliance with the ESA consultation standard. LCR tules are the constraining Chinook stock for fisheries north of Cape Falcon in 2015.

- *SRW fall Chinook*. Alternatives have ocean exploitation rates of 50.6 percent or less of the base period exploitation rates, 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 2015.

All of the 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 except those listed above for LCR natural tule fall Chinook (Table 5).

8.1.1.2 South of Cape Falcon

Status of Chinook stocks important to 2015 Chinook harvest management south of Cape Falcon are:

- *SRFC*. The SI forecast is 652,000, which is slightly larger than the 2014 preseason forecast of 634,700.

- *KRFC*. The age-3 forecast is 342,200 KRFC. The age-4 forecast is 71,100 fish, and the age-5 forecast is 10,400. Last year's preseason forecast was 219,800 age-3, 67,400 age-4, and 12,100 age-5 fish.

- *SRWC.* No abundance forecast is made for this stock. The geometric mean of the most recent three years of escapement is 3,659 fish which represents an increase in this quantity relative to last year.

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

- 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.

Fishery quotas under the Alternatives are presented in Table 4. Stock-specific management criteria and their forecast values under the Alternatives are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality under the Alternatives are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCR tule Chinook. Appendix A presents tables of the SRWC age-3 impact rate and age-4 KRFC harvest, by fishery/month/management area, under the three Alternatives. Descriptions pertaining to the achievement of key objectives for Chinook salmon management south of Cape Falcon are found below.

- *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.

- *SRWC.* The ESA consultation standard that (1) limits the forecast age-3 impact rate in 2015 fisheries south of Point Arena to a maximum of 19.0 percent and (2) specifies time/area closures and minimum size limit constraints south of Point Arena, is met by each of the Alternatives.

- *KRFC.* The control rule-defined minimum of 40,700 natural area adult spawners is met by each of the Alternatives.

- *SRFC.* The control rule-defined minimum of 195,596 hatchery and natural area adult spawners is met by each of the Alternatives.

- *SRW fall Chinook.* SRW Chinook will not constrain ocean fisheries south of Cape Falcon in 2015.

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

8.1.2 Coho Salmon

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

- *OPI Hatchery coho.* The 2015 forecast for hatchery coho from the Columbia River and the coast south of Cape Falcon of 808,400 is lower than the 2014 forecast of 983,100. The Columbia River early coho forecast is 515,200 compared to the 2014 forecast of 526,600 and the Columbia River late coho forecast is 261,900, compared to the 2014 forecast of 437,500.

- *OCN coho.* The 2015 OCN forecast is 206,600 compared to the 2014 forecast of 230,600.

- *LCN coho.* The 2015 LCN forecast is 35,100 compared to the 2014 forecast of 33,100.

- *Puget Sound coho.* Among Puget Sound natural stocks, Skagit, Snohomish, Stillaguamish, and Hood Canal are in the normal category in 2015, and Strait of Juan de Fuca is in the critical 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 2015.

- *Queets coho.* This Washington coastal stock is forecast to be low in 2015 and will constrain ocean fisheries.

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. Based on this guidance, the maximum allowable exploitation rates for 2015 are: a combined marine/freshwater exploitation rate not to exceed 15.0 percent for OCN coho, a combined exploitation rate in marine-area and mainstem Columbia River fisheries not to exceed 23.0 percent for LCN coho, and a marine exploitation rate not to exceed 13.0 percent for Rogue/Klamath 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. Because of the generally favorable forecasts for coho stocks in 2015, Interior Fraser is the key management stock for ocean fisheries north of Cape Falcon. The majority of the exploitation on this stock occur 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 prior to the April Council meeting. Because of their abundance status, Interior Fraser coho are subject to an exploitation rate ceiling of 10.0 percent in southern U.S. fisheries under the PST Southern Coho Management Plan. Queets coho will likely constrain ocean fisheries.

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

- *LCN coho.* All three Alternatives satisfy the maximum 23.0 percent exploitation rate when 2015 projected marine impacts are combined with the 2014 preseason modeled impacts for mainstem Columbia River fisheries. Marine exploitation rates projected for 2015 Alternatives range from 14.4 percent in Alternative I to 10.6 percent in Alternative III.

- *Queets wild coho.* The FMP MSY adult spawner objective for Queets wild coho is 5,800; projected ocean escapement values for the 2015 Alternatives range from 6,100 in Alternative I to 6,300 in Alternative III.

- *Interior Fraser coho.* Southern U.S. exploitation rates in all Alternatives satisfy the 10.0 percent maximum required by the PST Southern Coho Management Plan when 2015 projected marine

impacts are combined with the 2014 preseason modeled impacts for Puget Sound fisheries. Shaping of the State and Tribal inside fisheries will occur during the North of Falcon process, and ocean fisheries may require further shaping before final management measures are adopted in order to comply with the PST limit.

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

8.1.3 Pink Salmon

Pink salmon are sufficiently abundant to merit management consideration in 2015. Impacts on Chinook and coho in pink-directed fisheries may be part of negotiations to reach a final agreement in North of Cape Falcon ocean and Puget Sound fisheries.

8.1.4 Summary of Environmental Impacts on Target Stocks

Stock forecasts for some Canadian stocks and the actual PST limits on AABM fisheries are not known at this time, and preliminary values have been used in the analyses presented in this report. These forecasts and limits will 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 reduced 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 2015 Council area 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.

8.1.4.2 ESA Listed Salmon Stocks

Based on current assumptions regarding Canadian, Alaskan, and inside fishery impacts, all ESA listed salmon stocks meet their ESA consultation standards under all Alternatives except LCR natural tule Chinook in Alternative I (Table 5). Further shaping of Canadian, Alaskan, and inside fisheries may result in compliance with the ESA consultation standard; however, additional restrictions to Council area fisheries may be necessary to meet both consultation standards and inside fishery needs.

ESA consultation standards are met for all stocks under Alternatives II and III (Table 5).

Council-area fisheries have a minor impact on ESA-listed Puget Sound Chinook and on most Chinook stocks subject to the 2009 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 the Council manages the salmon fishery to meet escapement objectives for stocks that are expected to achieve optimum yields while rebuilding 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, a different set of stocks is most abundant in each ocean area, thus the use of management areas facilitate more optimal management of each stock than would 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°40'30" N. lat.) on Oregon's southern coast; (3) the Klamath Management Zone, which covers ocean waters from Humbug Mountain in southern Oregon to Horse Mountain (40°05' N. lat.) in northern California; (4) from Horse Mountain to Point Arena (38°57'30" N. lat.); and (5) from Point Arena 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. A map of the boundaries of these areas, also showing the main salmon ports, appears on the inside back cover of this report. The following analysis of impacts on fishermen and fishing communities is organized around these broad management areas.

The Review of 2014 Ocean Salmon Fisheries (PFMC 2015a) 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 economic impact of Council-area ocean salmon fisheries, commercial exvessel value, recreational fishing trips, and community level personal income impacts resulting from both commercial and recreational fishing activities are used.

The short-term economic effects of the regulatory Alternatives for non-Indian fisheries are shown in Tables 9 and 10. Table 9 shows projected commercial troll impacts expressed in terms of estimated potential exvessel value. Table 10 shows projected recreational fisheries impacts in terms of the number of projected angler-trips and community personal income impacts associated with those activities. Note that exvessel values shown under the Alternatives for the commercial troll fishery in Table 9 and income impact values shown for the recreational fishery in Table 10 are not directly comparable. More directly comparable measures of short-term economic impacts from commercial and recreational salmon fisheries appear in Figures 1 and 2, which show estimated community income impacts under the commercial troll and recreational fishery Alternatives, respectively, compared to historical impacts in real (inflation-adjusted) dollars. 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 2014 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 2014 fishery indicate the expected impact of the Alternative compared with not taking action, i.e., if 2014 regulations were to remain in place. While reductions in income impacts 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 livelihood.

Total economic effects 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 or may provide additional spawning escapement. 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 catch per unit effort (CPUE) (i.e., lower costs for commercial harvesters and/or higher success rates for recreational fishers). 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 which are influenced by habitat conditions in the ocean and in the spawning grounds.

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 year 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*. Recreational fishery effort north of Cape Falcon was estimated using historical CPUE estimates applied to salmon quotas under the Alternatives. For the summer mark-selective coho fishery, coho quotas North of Cape Falcon under the Alternatives, although somewhat lower than last year, are still relatively high compared with the recent past. For modeling projected economic impacts of the summer recreational coho fishery, the average 2014 Washington coho CPUE was applied to the coho quota under each Alternative. For the June Chinook fisheries Alternatives, average 2011-2013 Washington Chinook CPUE was applied.

Exvessel revenues in Table 9 are based on estimated harvest by catch area while commercial income impacts in Figure 1 are based on projected deliveries by landing area. Historically there has been a divergence between these two measures. The difference is due to deliveries of salmon caught in certain catch areas to ports in neighboring catch areas. This pattern is particularly true for areas between Humbug Mountain in Oregon and Point Arena in California. In an attempt to account for this effect and assign income impacts to the "correct" landing area, adjustments are made based on historical transfer patterns. The patterns are typically inferred from the most recent year's catch and landings data. For example in 2014 there were apparently deliveries of salmon caught between Cape Falcon and Humbug Mountain to landing ports in the Oregon KMZ region, and deliveries of salmon caught between Horse Mountain and Point Arena to landings ports in the California KMZ region. There were also transfers of harvest between other catch areas and adjacent landings ports but these were much less by comparison.

The expected harvests used to model commercial fishery impacts are taken from Table 6. The prior year's exvessel prices were assumed to be the best indicator of prices expected in the coming season. Coastwide average exvessel Chinook prices in 2014 were lower in inflation-adjusted terms than in 2013, but still relatively high compared with recent history. However if actual average exvessel prices this year prove to be much higher or lower than what was observed in 2014, then salmon exvessel revenues and resulting commercial fisheries income impacts projected in this document may prove to be correspondingly biased. Unless otherwise noted, 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, coastwide fishery dependent community personal income from commercial salmon fisheries would be projected to be less than last year's (2014) level by 17 percent but to exceed the recent (2010-2014) inflation-adjusted average by 19 percent. Coastwide income from recreational fishing would be projected to exceed last year's level by 21 percent and the recent inflation-adjusted average by 54 percent.

Commercial fisheries income would be projected to exceed last year's level in management areas North of Cape Falcon and South of Point Arena, but to fall below last year's performance in all other areas. Commercial fisheries income under this Alternative would be projected to exceed the inflation-adjusted 2010-2014 average in all management areas, except Horse Mountain to Point Arena.

Commercial fisheries income North of Cape Falcon would be projected to be 33 percent higher than last year and 61 percent higher than the 2010-2014 inflation-adjusted average.

Areas between Cape Falcon and Point Arena would see commercial fisheries income below last year's levels. Areas between Cape Falcon and Humbug Mountain, between Humbug Mountain and Horse Mountain, and between Horse Mountain and Point Arena would see projected income declines of 55, 0.3 and 29 percent, respectively, below last year's levels. However only the area between Horse Mountain and Point Arena would be projected to have commercial fisheries income below (-10 percent) their 2010-2014 inflation-adjusted average.

Projected income from recreational fisheries North of Cape Falcon would be 35 percent higher than last year and 81 percent higher than the 2010-2014 inflation-adjusted average.

Recreational fisheries income South of Cape Falcon would be projected to be 11 percent higher than last year overall and 38 percent above the 2010-2014 inflation-adjusted average. Income would be projected to be higher compared with last year in all management areas except Cape Falcon to Humbug Mountain, where a decline of 32 percent would be projected, but still 21 percent above the 2010-2014 inflation-adjusted average. The greatest percentage increase in income for management areas South of Cape Falcon would be for the area South of Point Arena, where an increase of 30 percent would be projected, compared to 2014, which is also 45 percent above the 2010-2014 inflation-adjusted average.

Combined commercial and recreational salmon fisheries income, coastwide, would be positive compared to recent year averages (2010-2014), but within the observed historical range. Therefore, economic impacts to fishery dependent communities under Alternative I would not be expected to be significant.

8.2.2 Alternative II

Under Alternative II, coastwide fishery dependent community personal income from commercial salmon fisheries would be projected to be less 18 percent less than last year (2014), but to 19 percent more than the recent (2010-2014) inflation-adjusted average. Coastwide income from recreational fishing would be projected to be 12 percent more than last year and 43 percent more than the inflation-adjusted 2010-2014 average.

Commercial fisheries income would be projected to fall below last year's level in all management areas except North of Cape Falcon and South of Point Arena, but to exceed the inflation-adjusted 2010-2014 average in all management areas except Cape Falcon to Humbug Mountain and Horse Mountain to Point Arena.

Commercial fisheries income in the area North of Cape Falcon would be projected to be 19 percent higher than last year and 44 percent higher than the 2010-2014 inflation-adjusted average. The area between Cape Falcon and Humbug Mountain would be projected to see commercial fisheries income 57 percent below last year and two percent below the 2010-2014 inflation-adjusted average.

The area between Humbug Mountain and Horse Mountain would be projected to see commercial fisheries income 23 percent below last year but 39 percent above the 2010-2014 inflation-adjusted average. Areas between Horse Mountain and Point Arena would see projected commercial fisheries income 24 percent below last year's level and four percent below the 2010-2014 inflation-adjusted average. Areas South of Point Arena would see projected commercial fisheries income 37 percent above last year's level and 30 percent above the 2010-2014 inflation-adjusted average.

Projected income from recreational fisheries North of Cape Falcon would be 16 percent higher than last year and 56 percent above the 2010-2014 inflation-adjusted average.

Recreational fisheries income South of Cape Falcon would be projected to be nine percent higher overall than last year and 36 percent higher than the 2010-2014 inflation-adjusted average. Income would be projected to be higher than last year in all management areas except Cape Falcon to Humbug Mountain where a decrease of 37 percent from last year would be projected, but still 12 percent above the 2010-2014 inflation-adjusted average. The greatest percentage income increase in 2015 for recreational fisheries in management areas South of Cape Falcon would be for the South of Point Arena region where an increase of 30 percent would be projected, 45 percent above the 2010-2014 inflation-adjusted average.

Combined commercial and recreational salmon fisheries income, coastwide, would be positive compared to recent year averages (2010-2014), but within the observed historical range. Therefore, economic impacts to fishery dependent communities under Alternative II would not be expected to be significant.

8.2.3 Alternative III

Under Alternative III, coastwide fishery dependent community personal income from commercial salmon fisheries would be projected to fall below last year (2014) level by 20 percent but to exceed the recent (2010-2014) inflation-adjusted average by 15 percent. Coastwide income from recreational fishing would be projected to exceed last year by two percent and the inflation-adjusted 2010-2014 average by 31 percent.

Commercial fisheries income would be projected to fall below last year in all management areas except North of Cape Falcon and South of Point Arena, but to exceed the inflation-adjusted 2010-2014 average in all management areas except Cape Falcon to Humbug Mountain and Horse Mountain to Point Arena.

Commercial fisheries income in the area North of Cape Falcon would be projected to be seven percent higher than last year and 29 percent above the 2010-2014 inflation-adjusted average. The area between Cape Falcon and Humbug Mountain would be projected to see commercial fisheries income impacts 58 percent below last year and four percent below the 2010-2014 inflation-adjusted average.

The area between Humbug Mountain and Horse Mountain would be projected to see commercial fisheries income 35 percent below last year, but 18 percent above the 2010-2014 inflation-adjusted average. Areas between Horse Mountain and Point Arena would see projected commercial fisheries income 23 percent below last year and four percent below the 2010-2014 inflation-adjusted average. Areas South of Point Arena would see projected commercial fisheries income 40 percent above last year and 34 percent above the 2010-2014 inflation-adjusted average.

Projected income from recreational fisheries North of Cape Falcon would be four percent higher than last year and 39 percent above the 2010-2014 inflation-adjusted average.

Recreational fisheries income South of Cape Falcon would be projected to be slightly higher overall than last year and 26 percent higher than the 2010-2014 inflation-adjusted average. Income would be projected to be higher in 2015 in all management areas except Cape Falcon to Humbug Mountain where a decline of 40 percent from last year would be projected, but still seven percent above the 2010-2014 inflation-adjusted average. The greatest percentage increase for management areas South of Cape Falcon would be for the area South of Point Arena where an increase of 19 percent would be projected, 33 percent above the 2010-2014 inflation-adjusted average.

Combined commercial and recreational salmon fisheries income, coastwide, would be positive compared to recent year averages (2010-2014), but within the observed historical range. Therefore, economic impacts to fishery dependent communities under Alternative III would not be expected to be significant.

8.2.4 Summary of Impacts on the Socioeconomic Environment

The commercial fishery Alternatives are expected to generate coastwide income 17 percent to 20 percent below last year, although this would still be 15 percent to 19 percent above the 2010-2014 inflation-adjusted average. However these coastwide declines mask regional differences along the coast. Income from commercial fisheries in catch areas and ports north of Cape Falcon and south of Point Arena are projected to be higher under the Alternatives than last year and also higher than the average of the recent past. The assumed shifting of a portion of landings (based on 2014 patterns) from areas immediately north and south of the KMZ to ports in the KMZ area may offset some of the effect of reduced KMZ harvest on regional ports. While areas immediately south of the KMZ are projected to see reductions in commercial harvest and income compared with last year, areas South of Point Arena are projected to see increased commercial fisheries income compared to last year and compared with the 2010-2014 inflation-adjusted average.

Total coastwide income from recreational fisheries are projected to be higher than last year and the 2010-2014 inflation-adjusted average, although areas between Cape Falcon and Humbug Mountain are projected to see income reductions under all the Alternatives relative to last year but still above their 2010-2014 averages. Overall, the region South of Cape Falcon is projected to see relatively small increases in income compared with last year under all three Alternatives, and still well above the 2010-2014 inflation-adjusted average. The area North of Cape Falcon is also projected to see increased income compared with last year and the 2010-2014 inflation-adjusted average under all three Alternatives.

Table summarizing and comparing economic effects of the alternatives in percent change of income (U.S. dollars) compared to 2014 and compared to the recent 5-year inflation-adjusted average .

	Alternative I		Alternative II		Alternative III	
Fishery sector	Compared to 2014	Compared to recent average (2010 – 2014)	Compared to 2014	Compared to recent average (2010 – 2014)	Compared to 2014	Compared to recent average (2010 – 2014)
Commercial fisheries (coastwide)	- 17 percent	+ 19 percent	- 18 percent	+ 19 percent	- 20 percent	+ 15 percent
Recreational fisheries (coastwide)	+ 21 percent	+ 54 percent	+ 12 percent	+ 43 percent	+ 2 percent	+ 31 percent

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 among the Alternatives for the 2015 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 2015 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 2015 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 2015 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 (79 FR 77919). 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 and ocean salmon fisheries has changed since the Category III determination. Therefore, the impacts from the 2015 salmon regulation Alternatives to non-ESA listed marine mammals are not expected to be significant, and there is no discernible difference among the effects of the Alternatives on these resources.

8.5 ESA Listed Species

Available information indicates that Pacific Coast salmon fisheries are not likely to jeopardize the existence of the Guadalupe fur seal (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 among the effects of the Alternatives on these resources.

The NMFS BO on Southern Resident killer whale distinct population segment (NMFS 2008; Appendix B) 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 has initiated a five year review of the Southern Resident killer whale ESA listing. There is new information that indicates Chinook salmon abundance may correlate with killer whale population growth rate, and while this information is under review, it is possible that future consultation standards for Puget Sound and possibly Council area fisheries will change as a result of this new information. However, the 2015 ocean salmon regulations are covered by the NMFS 2008 BO, and on that basis it is expected that the 2015 regulations would not have significant impacts to Southern Resident killer whales. There is no discernible difference among the effects of the Alternatives on killer whales.

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 Alternatives for 2015

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 among 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 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 among 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 among 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 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 2015 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 among 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.[*] 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 Affected Resource

The affected resources that relate to the Pacific Coast salmon fishery are described in the Affected Environment sections of Preseason I and in Section 8.0 of this report. The significance of 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 nautical 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

[**] Consideration of Cumulative Impacts in EPA Review of NEPA Documents (U.S. EPA 1999). Available online at: http://www.epa.gov/compliance/resources/policies/nepa/

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).

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

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 Cumulative Effects

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.

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 2015a) 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 2015 ocean salmon regulation Alternatives, from final regulations selected from within the range presented in these Alternatives.

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

Affected Resources	Magnitude of Net Impact of Past, Present, and Foreseeable Future Actions	Magnitude of the Impact of the Proposed Action (based on analyzed alternatives)	Significant Cumulative Effects
Fishery and Fish Resources	Low Positive	Low Positive	None
Protected Resources	Low Positive	Low Positive	None
Biodiversity, Ecosystem function, and Habitats	Neutral	Neutral	None
Socioeconomics	Low Positive	Low Positive	None

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):

October 21-23, 2014:	**Salmon Technical Team/Scientific and Statistical Committee Salmon Subcommittee joint meeting**, Portland, Oregon.
November 14-19:	**Pacific Fishery Management Council meeting**, Costa Mesa, California.
January 20-23, 2015:	**Salmon Technical Team (Review preparation)**, Portland, Oregon.
February 11:	California Fish and Game Commission meeting, Sacramento, California.
February 17-20:	**Salmon Technical Team (Preseason Report I preparation)**, Portland, Oregon.
February 26:	California Department of Fish and Wildlife public meeting, Santa Rosa, California.
	Oregon Salmon Industry Group meeting, Newport, Oregon.
March 2:	Washington Department of Fish and Wildlife public meeting, Olympia, Washington.
March 6:	Oregon Fish and Wildlife Commission meeting, Salem, Oregon.
March 8-12:	**Pacific Fishery Management Council meeting**, Vancouver, Washington.
March 16:	North of Falcon and *U.S.* v. *Oregon Forums*, Vancouver, Washington.
	California Fish and Game Commission meeting, Teleconference.
March 18:	North of Falcon, Ocean fisheries, Puget Sound, and *U.S.* v. *Oregon Forums*, Olympia, Washington.
March 30-31:	**Public hearings on management options** in Westport, Washington; Coos Bay, Oregon; and Fort Bragg, California.
April 1:	North of Falcon, Ocean fisheries and Puget Sound Forums, Lynnwood, Washington.
April 11-16:	**Pacific Fishery Management Council meeting**, Rohnert Park, CA.
April 17:	Washington Fish and Wildlife Commission meeting, Teleconference.
	California Fish and Game Commission meeting, Teleconference.
April 24:	Oregon Fish and Wildlife Commission meeting, Bend, Oregon.

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

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

National Marine Fisheries Service, Sustainable Fisheries Division, West Coast Region
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

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

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. 2015a. Review of 2014 ocean salmon fisheries. Pacific Fishery Management Council, Portland, Oregon.

PFMC. 2015b. Preseason Report I: Stock abundance analysis and environmental assessment part 1 for 2015 ocean salmon fishery management measures. Pacific Fishery Management Council, Portland, Oregon.

U.S. Environmental Protection Agency. 1999. Consideration of Cumulative Impacts in EPA Review of NEPA Documents. Office of Federal Activities (2252A). EPA 315-R-99-002/May 1999.

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

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015 (Page 1 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 131,000 (non-mark-selective equivalent of 125,000) Chinook and 180,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 67,000 Chinook and 20,800 marked coho. 3. Trade: Commercial troll traded 8,000 coho to the recreational fishery for 2,000 Chinook. Additional trades may be considered at the April Council meeting. 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.	1. Overall non-Indian TAC: 121,000 (non-mark-selective equivalent of 115,000) Chinook and 160,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 59,000 Chinook and 25,600 marked coho. 3. Trade: May be considered at the April Council meeting 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.	1. Overall non-Indian TAC: 111,000 (non-mark-selective equivalent of 105,000) Chinook and 140,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 53,000 Chinook and 22,400 marked coho. 3. Trade: May be considered at the April Council meeting 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.
U.S./Canada Border to Cape Falcon • May 1 through earlier of June 30 or 40,200 Chinook, no more than 12,300 of which may be caught in the area between the U.S./Canada border and the Queets River and no more than 14,000 are caught in the area between, Leadbetter Pt. and Cape Falcon. Seven days per week (C.1). All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B). Vessels in possession of salmon north of the Queets River may not cross the Queets River line without first notifying WDFW at 360-902-2739 with area fished, total Chinook 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 360-902-2739 with area fished, total Chinook and halibut catch aboard, and destination. See compliance requirements and gear restrictions and definitions (C.2, C.3). When it is projected that 29,250 Chinook have been landed overall, or 9,225 Chinook have been landed in the area between the U.S/Canada border and the Queets River, or 9,525 Chinook have been landed in the area between Leadbetter Pt. and Cape Falcon, inseason action modifying the open period to five days per week and adding landing and possession limits will be considered to ensure the guideline is not exceeded.	**U.S./Canada Border to Cape Falcon** • May 1 through earlier of June 30 or 39,300 Chinook, no more than 12,300 of which may be caught in the area between the U.S./Canada border and the Queets River. Seven days per week. Between Leadbetter Pt. **and** Cape Falcon, landing and possession limit of 125 Chinook per vessel per week (Friday through Thursday) (C.1). All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B). Vessels in possession of salmon north of the Queets River may not cross the Queets River line without first notifying WDFW at 360-902-2739 with area fished, total Chinook 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 360-902-2739 with area fished, total Chinook and halibut catch aboard, and destination. See compliance requirements and gear restrictions and definitions (C.2, C.3). When it is projected that 29,475 Chinook have been landed overall, or 9,225 Chinook have been landed in the area between the U.S/Canada border and the Queets River, inseason action modifying the open period to five days per week and adding landing and possession limits will be considered to ensure the guideline is not exceeded.	**U.S./Canada Border to Cape Falcon** • May 1 through earlier of June 30 or 35,000 Chinook. Five days per week, Friday through Tuesday with a landing and possession limit of 125 Chinook per vessel per open period (C.1). All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B). See compliance requirements and gear restrictions and definitions (C.2, C.3).

Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing or in possession of salmon while fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing or in possession of salmon while fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must 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 nfalcon.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).

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 2 of 9)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
U.S./Canada Border to Cape Falcon • July 1 through earlier of September 22 or attainment of the quota of 26,800 Chinook, no more than 10,700 of which may be caught in the area between the U.S./Canada border and the Queets River or 20,800 marked coho (C.8.d). July 1-7 then Friday through Tuesday July 10 through September 22 with a landing and possession limit of 50 Chinook and 50 coho per vessel per open period (C.1). Vessels in possession of salmon north of the Queets River may not cross the Queets River line without first notifying WDFW at 360-902-2739 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 360-902-2739 with area fished, total Chinook, coho, and halibut catch aboard, and destination. When it is projected that 19,500 Chinook have been landed overall, or 8,025 Chinook have been landed in the area between the U.S./Canada border and the Queets River, inseason action modifying the open period to five days per week and adding landing and possession limits will be considered to ensure the guideline is not exceeded. No earlier than September 1, if at least 5,000 marked coho remain on the quota, inseason action may be considered to allow non-selective coho retention (C.8). All salmon, except no chum retention north of Cape Alava, Washington in August and September (C.7). Chinook minimum size limit of 28 inches total length (B, C.1). All coho must be marked except as noted above (C.8.d). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Cape Falcon** • July 1 through earlier of September 15 or attainment of the quota of 19,700 Chinook, no more than 8,100 of which may be caught in the area between the U.S./Canada border and the Queets River, or 25,600 marked coho (C.8.d). July 1-7, then Friday through Tuesday July 10 through September 15 with a landing and possession limit of 40 Chinook and 30 coho per vessel per open period (C.1). Vessels in possession of salmon north of the Queets River may not cross the Queets River line without first notifying WDFW at 360-902-2739 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 360-902-2739 with area fished, total Chinook, coho, and halibut catch aboard, and destination. When it is projected that 14,775 Chinook have been landed overall, or 6,075 Chinook have been landed in the area between the U.S./Canada border and the Queets River, inseason action modifying the open period to five days per week and adding landing and possession limits will be considered to ensure the guideline is not exceeded. All salmon, except no chum retention north of Cape Alava, Washington in August and September (C.7). Chinook minimum size limit of 28 inches total length (B, C.1). All coho must be marked (C.8.d). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Cape Falcon** • July 1 through earlier of September 15 or 18,000 preseason Chinook guideline (C.8) or a 22,400 marked coho quota (C.8.d) July 1-7, then Friday through Tuesday July 10 through September 15 with a landing and possession limit of 30 Chinook and 20 coho per vessel per open period (C.1). All salmon, except no chum retention north of Cape Alava, Washington in August and September (C.7). Chinook minimum size limit of 28 inches total length (B, C.1). All coho must be marked except as noted above (C.8.d). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones, and beginning August 9, Grays Harbor Control Zone closed (C.5). Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Vessels fishing or in possession of salmon while fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing or in possession of salmon while fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their 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 must 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 nfalcon.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).

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 3 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Sacramento River Basin recreational fishery catch assumption: 55,808 adult Sacramento River fall Chinook (18.1% of the total allowable harvest). 2. Sacramento River fall Chinook spawning escapement of 342,820 adults. 3. Klamath River recreational fishery allocation: 13,619 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 43,747 adult Klamath River fall Chinook. 5. 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.	1. Sacramento River Basin recreational fishery catch assumption: 54,673 adult Sacramento River fall Chinook (17.3% of the total allowable harvest). 2. Sacramento River fall Chinook spawning escapement of 335,846 adults. 3. Klamath River recreational fishery allocation: 13,909 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 43,641 adult Klamath River fall Chinook. 5. 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.	1. Sacramento River Basin recreational fishery catch assumption: 53,367 adult Sacramento River fall Chinook (16.5% of the total allowable harvest). 2. Sacramento River fall Chinook spawning escapement of 327,827 adults. 3. Klamath River recreational fishery allocation: 13,377 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 43,824 adult Klamath River fall Chinook. 5. 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.
Cape Falcon to Humbug Mt. • April 1-August 26; • September 2-October 31 (C.9). 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 fish in the State of Oregon. See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. Beginning September 2, no more than 50 Chinook per vessel per landing week (Thursday through Wednesday). In 2016, the season will open March 15 for all salmon except coho. Chinook minimum size limit of 28 inches total length. Gear restrictions same as in 2015. This opening could be modified following Council review at its March 2016 meeting.	**Cape Falcon to Humbug Mt.** • April 1-August 26; • September 2-30 (C.9). 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 fish in the State of Oregon. See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. Beginning September 2, no more than 65 Chinook per vessel per landing week (Thursday through Wednesday). In 2016, same as Alternative I.	**Cape Falcon to Humbug Mt.** • April 1-August 29; • September 10-October 10 (C.9). 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 fish in the State of Oregon. See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. Beginning September 10, no more than 75 Chinook per vessel per landing week (Thursday through Wednesday). In 2016, same as Alternative I.

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 4 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Humbug Mt. to OR/CA Border (Oregon KMZ) • April 1-May 31; • June 1 through earlier of June 30, or a 2,500 Chinook quota; • July 1 through earlier of July 31, or a 1,000 Chinook quota; • August 1 through earlier of August 26, or a 500 Chinook quota (C.9). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). Prior to June 1, all fish caught in this area must be landed and delivered in the State of Oregon. June 1 through August 26, single daily landing and possession limit 30 Chinook per vessel per day (C.8.g). Any remaining portion of the June and/or July Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period. All vessels fishing in this area must land and deliver all fish within this area or Port Orford, within 24 hours of any closure of this fishery, and prior to fishing outside of this area. Oregon State regulations require all fishers landing salmon from any quota managed season within this area to notify Oregon Dept. of Fish and Wildlife (ODFW) within 1 hour of delivery or prior to transport away from the port of landing by either calling (541) 867-0300 ext. 252 or sending notification via e-mail to KMZOR.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. See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). In 2016, the season will open March 15 for all salmon except coho, with a 28 inch Chinook minimum size limit. This opening could be modified following Council review at its March 2016 meeting.	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • April 1-May 31; • June 1 through earlier of June 30, or a 2,000 Chinook quota; • July 1 through earlier of July 31, or a 800 Chinook quota; • August 1 through earlier of August 26, or a 500 Chinook quota (C.9). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). Prior to June 1, all fish caught in this area must be landed and delivered in the State of Oregon. June 1 through August 26 landing and possession limit of 30 Chinook per vessel per day (C.8.g). Any remaining portion of the June and/or July Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period. All vessels fishing in this area must land and deliver all fish within this area or Port Orford, within 24 hours of any closure of this fishery, and prior to fishing outside of this area. Oregon State regulations require all fishers landing salmon from any quota managed season within this area to notify Oregon Dept. of Fish and Wildlife (ODFW) within 1 hour of delivery or prior to transport away from the port of landing by either calling (541) 867-0300 ext. 252 or sending notification via e-mail to KMZOR.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. See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). In 2016, same as Alternative I.	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • April 1-May 31; • June 1 through earlier of June 30, or a 1,500 Chinook quota; • July 1 through earlier of July 31, or a 500 Chinook quota; • August 1 through earlier of August 29, or a 500 Chinook quota (C.9). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). Prior to June 1, all fish caught in this area must be landed and delivered in the State of Oregon. June 1 through August 29 landing and possession limit of 20 Chinook per vessel per day (C.8.g). Any remaining portion of the June and/or July Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period. All vessels fishing in this area must land and deliver all fish within this area or Port Orford, within 24 hours of any closure of this fishery, and prior to fishing outside of this area. Oregon State regulations require all fishers landing salmon from any quota managed season within this area to notify Oregon Dept. of Fish and Wildlife (ODFW) within 1 hour of delivery or prior to transport away from the port of landing by either calling (541) 867-0300 ext. 252 or sending notification via e-mail to KMZOR.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. See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). In 2016, same as Alternative I.

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 5 of 9)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
OR/CA Border to Humboldt South Jetty (California KMZ) • May 1 through earlier of May 31, or a 3,000 Chinook quota; • June 1 through earlier of June 30, or a 1,000 Chinook quota; • July 1 through earlier of July 31, or a 500 Chinook quota; • August 1 through earlier of August 29, or a 500 Chinook quota; • September 8 through earlier of September 30, or a 5,000 Chinook quota (C.9.b). Five days per week, Friday through Tuesday. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length through August 29, 28 inches thereafter (B, C.1). Landing and possession limit of 20 Chinook per vessel per day (C.8.g). Any remaining portion of the May, June and/or July Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period (C.8.c).	**OR/CA Border to Humboldt South Jetty (California KMZ)** • September 8 through earlier of September 30, or a 3,000 Chinook quota (C.9.b). Five days per week, Friday through Tuesday. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). Landing and possession limit of 30 Chinook per vessel per day (C.8.g).	**OR/CA Border to Humboldt South Jetty (California KMZ)** Closed (C.9.b).
All fish caught in this area must be landed within the area and 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. 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).		
Humboldt South Jetty to Horse Mt. Closed.	**Humboldt South Jetty to Horse Mt.** Closed.	**Humboldt South Jetty to Horse Mt.** Closed.
Horse Mt. to Point Arena (Fort Bragg) • June 16-30; • July 9-31; • August 1-29; • September 1-30 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). In 2016, the season will open April 16-30 for all salmon except coho, with a 27 inch Chinook minimum size limit and the same gear restrictions as in 2015. All fish caught in the area must be landed in the area. This opening could be modified following Council review at its March 2016 meeting.	**Horse Mt. to Point Arena (Fort Bragg)** • May 25-31; • June 9-30; • July 7-31; • August 1-17; • September 1-30 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). In 2016, same as Alternative I.	**Horse Mt. to Point Arena (Fort Bragg)** • June 12-30; • July 7-31; • August 1-29 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). In 2016, same as Alternative I.
All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). When the CA KMZ fishery is open, all fish caught in the area must be landed south of Horse Mountain (C.6). During September, all fish must be landed north of Point Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).		

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 6 of 9)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Pt. Arena to Pigeon Pt. (San Francisco) • May 1-31; • June 16-30; • July 9-31; • August 1-29; • September 1-30 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length prior to September 1, 26 inches thereafter (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). During September, all fish must be landed south of Point Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). **Point Reyes to Point San Pedro (Fall Area Target Zone)** • October 1-2, 5-9, and 12-15. All salmon except coho (C.4, C.7). Chinook minimum size limit of 26 inches total length (B, C.1). All fish 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).	**Pt. Arena to Pigeon Pt. (San Francisco)** • May 1-31; • June 7-30; • July 9-31; • August 1-29; • September 1-30 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length prior to September 1, 26 inches thereafter (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). During September, all fish must be landed south of Point Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). **Point Reyes to Point San Pedro (Fall Area Target Zone)** • October 1-2, 5-9, and 12-15. All salmon except coho (C.4, C.7). Chinook minimum size limit of 26 inches total length (B, C.1). All fish 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).	**Pt. Arena to Pigeon Pt. (San Francisco)** • May 1-31; • June 1-30; • July 7-31; • August 1-29 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).
Pigeon Point to U.S./Mexico Border (Monterey) • May 1-31; • June 16-30; • July 9-31; • August 1-29; • September 1-30 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length prior to September 1, 26 inches thereafter (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). During September, all fish must be landed south of Point Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).	**Pigeon Point to U.S./Mexico Border (Monterey)** • May 1-31; • June 7-30; • July 7-31; • August 1-29; • September 1-30 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length prior to September 1, 26 inches thereafter (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). During September, all fish must be landed south of Point Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).	**Pigeon Point to U.S./Mexico Border (Monterey)** • May 1-31; • June 1-30; • July 7-31; • August 1-29 (C.9.b). Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).
California State regulations require all salmon be made available to a California Department of Fish and Wildlife (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)		

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 7 of 9)

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

Area (when open)		Chinook Total Length	Chinook Head-off	Coho Total Length	Coho Head-off	Pink
North of Cape Falcon		28.0	21.5	16.0	12.0	None
Cape Falcon to OR/CA Border		28.0	21.5	-	-	None
OR/CA Border to Humboldt South	Alt. I ≤ Aug. 29	27.0	20.5	-	-	None
	Alt. I ≥ Sept. 8	28.0	21.5	-	-	None
	Alt. II	28.0	21.5	-	-	None
Horse Mt. to Pt. Arena		27.0	20.5	-	-	None
Pt. Arena to U.S./Mexico Border	≤ Aug. 29	27.0	20.5	-	-	None
	≥ Sept. 1	26.0	19.5	-	-	None

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 ~~96~~ 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 ~~96~~ 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. In that portion of the fishery management area off Oregon and Washington, the line or lines must be affixed to the vessel and must not be intentionally disengaged from the vessel at any time during the fishing operation.

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

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

C.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 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. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 8 of 9)

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

C.5. Control Zone Definitions:

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

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

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

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

e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately six 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 six nautical miles south of the Klamath River mouth).

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 amount 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 2016 for 2016 permits (*exact date to be set by the IPHC in early 2016*). Incidental harvest is authorized only during April, May, and June of the 2015 troll seasons and after June 30 in 2015 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 29,671 pound preseason IPHC 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.

Alternative I - May 1, 2015 through December 31, 2015 and April 1-30, 2016, license holders may land or possess no more than one Pacific halibut per each four Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 12 halibut may be possessed or landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).
Alternative II - May 1, 2015 through December 31, 2015 and April 1-30, 2016, license holders may land or possess no more than one Pacific halibut per each five Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 10 halibut may be possessed or landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).
Alternative III - May 1, 2015 through December 31, 2015 and April 1-30, 2016, license holders may land or possess no more than one Pacific halibut per each five Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 8 halibut may be possessed or landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 9 of 9)
C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

Incidental Pacific halibut catch regulations in the commercial salmon troll fishery adopted for 2015, prior to any 2015 inseason action, will be in effect when incidental Pacific halibut retention opens on April 1, 2016 unless otherwise modified by inseason action at the March 2016 Council meeting.

a. "C-shaped" yelloweye rockfish conservation area is an area to be voluntarily avoided for salmon trolling. NMFS and the Council request salmon trollers voluntarily avoid this area in order to protect yelloweye rockfish. The area is defined in the Pacific Council Halibut Catch Sharing Plan in the North Coast subarea (Washington marine area 3), with the following coordinates in the order listed:
48°18' N. lat.; 125°18' W. long.;
48°18' N. lat.; 124°59' W. long.;
48°11' N. lat.; 124°59' W. long.;
48°11' N. lat.; 125°11' W. long.;
48°04' N. lat.; 125°11' W. long.;
48°04' N. lat.; 124°59' W. long.;
48°00' N. lat.; 124°59' W. long.;
48°00' N. lat.; 125°18' W. long.;
and connecting back to 48°18' N. lat.; 125°18' W. long.

C.8. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:
a. Chinook remaining from the May through June non-Indian commercial troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline if the transfer would not result in exceeding preseason impact expectations on any stocks.
b. Chinook remaining from the June and/or July non-Indian commercial troll quotas in the Oregon KMZ may be transferred to the Chinook quota for the next open period if the transfer would not result in exceeding preseason impact expectations on any stocks.
c. Chinook remaining from the May, June and/or July non-Indian commercial troll quotas in the 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.
d. NMFS may transfer fish 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.
e. At the March 2016 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2015).
f. If retention of unmarked coho is permitted by inseason action, the allowable coho quota will be adjusted to ensure preseason projected impacts on all stocks is not exceeded.
g. 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:
a. The State of Oregon may establish additional late-season fisheries in state waters.
b. The State of California may establish limited fisheries in selected state waters.
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.

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 1 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 131,000 (non-mark-selective equivalent of 125,000) Chinook and 180,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 64,000 (non-mark selective equivalent of 58,000) Chinook and 159,200 marked coho; all retained coho must be marked. 2,000 Chinook were traded to commercial troll for 8,000 coho which were added to the quota between Leadbetter Pt. and Cape Falcon. 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens August 1 with an expected landed catch of 63,100 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 121,000 (non-mark-selective equivalent of 115,000) Chinook and 160,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 62,000 (non-mark selective equivalent of 56,000) Chinook and 134,400 marked coho; all retained coho must be marked. 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens August 1 with an expected landed catch of 66,300 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 111,000 (non-mark-selective equivalent of 105,000) Chinook and 140,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 58,000 (non-mark selective equivalent of 52,000) Chinook and 117,600 marked coho; all retained coho must be marked. 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens August 1 with an expected landed catch of 70,700 marked coho in August and September. 6. 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.
U.S./Canada Border to Queets Rivers • May 15-16, May 22-23, and May 30-June 12 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Queets Rivers** • May 22-23 and June 6-19 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Queets Rivers** • June 13-26 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Queets Rivers to Leadbetter Point • May 30 through earlier of June 12 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets Rivers to Leadbetter Point** • June 6-19 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets Rivers to Leadbetter Point** • June 13-26 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 2 of 9)

A. SEASON ALTERNATIVE DESCRIPTIONS

ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Leadbetter Point to Cape Falcon • May 30 through earlier of June 12 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon** • June 6-19 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon** • June 13-26 or a coastwide marked Chinook quota of 10,000 (C.5). Seven days per week. Two fish per day, all salmon except coho. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
U.S./Canada Border to Cape Alava (Neah Bay) • June 13 through earlier of September 30 or 15,720 marked coho subarea quota with a subarea guideline of 8,400 Chinook (C.5). Seven days per week. All salmon except no chum beginning August 1; two fish per day plus two additional pink. All coho must be marked (C.1). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay)** • June 20 through earlier of September 30 or 13,980 marked coho subarea quota with a subarea guideline of 8,100 Chinook (C.5). Seven days per week. All salmon except no chum beginning August 1; two fish per day plus two additional pink. All coho must be marked (C.1). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay)** • June 27 through earlier of September 20 or 12,230 marked coho subarea quota with a subarea guideline of 7,500 Chinook (C.5). Seven days per week. All salmon except no chum beginning August 1; two fish per day plus two additional pink. All coho must be marked (C.1). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).
Cape Alava to Queets River (La Push Subarea) • June 13 through earlier of September 30 or 3,830 marked coho subarea quota with a subarea guideline of 2,600 Chinook (C.5). • October 1 through earlier of October 11 or 100 marked coho quota or 100 Chinook quota (C.5) in the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. Seven days per week. All salmon, two fish per day plus two additional pink. All coho must be marked (see *Ocean Boat Limits*, C.1). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • June 20 through earlier of September 20 or 3,390 marked coho subarea quota with a subarea guideline of 2,500 Chinook (C.5). • September 27 through earlier of October 11 or 100 marked coho quota or 100 Chinook quota (C.5) in the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. Seven days per week. All salmon, two fish per day plus two additional pink. All coho must be marked (see *Ocean Boat Limits*, C.1). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • June 27 through earlier of September 20 or 2,960 marked coho subarea quota with a subarea guideline of 2,300 Chinook (C.5). • September 27 through earlier of October 11 or 100 marked coho quota or 100 Chinook quota (C.5) in the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. Seven days per week. All salmon, two fish per day plus two additional pink. All coho must be marked (see *Ocean Boat Limits*, C.1). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 3 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Queets River to Leadbetter Point (Westport Subarea) • June 13 through earlier of September 30 or 55,950 marked coho subarea quota with a subarea guideline of 27,900 Chinook (C.5). Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked (C.1). See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 11 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • June 20 through earlier of September 30 or 49,730 marked coho subarea quota with a subarea guideline of 26,900 Chinook (C.5). Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked (C.1). See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 11 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • June 27 through earlier of September 20 or 43,510 marked coho subarea quota with a subarea guideline of 24,800 Chinook (C.5). Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked (C.1). See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 11 (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).
Leadbetter Point to Cape Falcon (Columbia River Subarea) • June 13 through earlier of September 30 or 83,600 marked coho subarea quota with a subarea guideline of 15,000 Chinook (C.5). Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked (C.1). See gear restrictions and definitions (C.2, C.3). 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).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • June 20 through earlier of September 30 or 67,200 marked coho subarea quota with a subarea guideline of 14,400 Chinook (C.5). Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked (C.1). See gear restrictions and definitions (C.2, C.3). 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).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • June 27 through earlier of September 30 or 58,800 marked coho subarea quota with a subarea guideline of 13,300 Chinook (C.5). Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked (C.1). See gear restrictions and definitions (C.2, C.3). 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).

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (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**
1. Sacramento River Basin recreational fishery catch assumption: 55,808 adult Sacramento River fall Chinook (18.1% of the total allowable harvest). 2. Sacramento River fall Chinook spawning escapement of 342,820 adults. 3. Klamath River recreational fishery allocation: 13,619 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 43,747 adult Klamath River fall Chinook. 5. Overall recreational coho TAC: 60,000 coho marked with a healed adipose fin clip (marked), and 10,000 coho in the non-mark-selective coho fishery. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Sacramento River Basin recreational fishery catch assumption: 54,673 adult Sacramento River fall Chinook (17.3% of the total allowable harvest). 2. Sacramento River fall Chinook spawning escapement of 335,846 adults. 3. Klamath River recreational fishery allocation: 13.909 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 43,641 adult Klamath River fall Chinook. 5. Overall recreational coho TAC: 52,500 coho marked with a healed adipose fin clip (marked), and 15,000 coho in the non-mark-selective coho fishery. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Sacramento River Basin recreational fishery catch assumption: 53,367 adult Sacramento River fall Chinook (16.5% of the total allowable harvest). 2. Sacramento River fall Chinook spawning escapement of 327,827 adults. 3. Klamath River recreational fishery allocation: 13,377 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 43,824 adult Klamath River fall Chinook. 5. Overall recreational coho TAC: 40,000 coho marked with a healed adipose fin clip (marked), and 8,000 coho in the non-mark-selective coho fishery. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.
Cape Falcon to Humbug Mt. • March 15 through October 31 (C.6), except as provided below during the July all-salmon mark-selective and September non-mark-selective coho fisheries. 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). • Non-mark-selective coho fishery: September 4 through the earlier of September 30 or a landed catch of 10,000 coho (C.5). Seven days per week. All salmon, two fish per day (C.5). The all salmon except coho season reopens the earlier of October 1 or attainment of the coho quota (C.5). In 2016, the season between Cape Falcon and Humbug Mountain will open March 15 for all salmon except coho, two fish per day (B, C.1, C.2, C.3).	**Cape Falcon to Humbug Mt.** • March 15 through October 31 (C.6), except as provided below during the July all-salmon mark-selective and September non-mark-selective coho fisheries. 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). • Non-mark-selective coho fishery: September 4 through the earlier of September 30 or a landed catch of 15,000 coho (C.5). Seven days per week. All salmon, two fish per day (C.5). The all salmon except coho season reopens the earlier of October 1 or attainment of the coho quota (C.5). In 2016, same as Alternative I.	**Cape Falcon to Humbug Mt.** • March 15 through October 31 (C.6), except as provided below during the July all-salmon mark-selective and September non-mark-selective coho fisheries. 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). • Non-mark-selective coho fishery: September 3 through the earlier of September 30 or a landed catch of 8,000 coho (C.5). Open Thursday through Saturday, All salmon, two fish per day (C.5); Open Sunday through Wednesday, All salmon except coho, two fish per day (C.5), The all salmon except coho season reopens the earlier of October 1 or attainment of the coho quota (C.5). In 2016, same as Alternative I
Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).		

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 5 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Cape Falcon to OR/CA Border • All-salmon mark-selective coho fishery: June 27 through earlier of August 9 or a landed catch of 60,000 marked coho. Seven days per week. All salmon, two fish per day. All retained coho must be marked (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Any remainder of the mark selective coho quota will be transferred on an impact neutral basis to the September non-selective coho quota from Cape Falcon to Humbug Mountain (C.5). The all salmon except coho season reopens the earlier of August 10 or attainment of the coho quota. 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).	**Cape Falcon to OR/CA Border** • All-salmon mark-selective coho fishery: June 27 through earlier of July 31 or a landed catch of 52,500 marked coho. Seven days per week. All salmon, two fish per day. All retained coho must be marked (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Any remainder of the mark selective coho quota will be transferred on an impact neutral basis to the September non-selective coho quota from Cape Falcon to Humbug Mountain (C.5). The all salmon except coho season reopens the earlier of August 1 or attainment of the coho quota. 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).	**Cape Falcon to OR/CA Border** • All-salmon mark-selective coho fishery: July 1 through earlier of July 31 or a landed catch of 40,000 marked coho. Seven days per week. All salmon, two fish per day. All retained coho must be marked (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Any remainder of the mark selective coho quota will be transferred on an impact neutral basis to the September non-selective coho quota from Cape Falcon to Humbug Mountain (C.5). The all salmon except coho season reopens the earlier of August 1 or attainment of the coho quota. 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).
Humbug Mt. to OR/CA Border (Oregon KMZ) • May 1 through September 7 (C.6). All salmon except coho, except as noted above in the all-salmon mark-selective coho fishery. Seven days per week, 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).	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • May 9 through September 7 (C.6). All salmon except coho, except as noted above in the all-salmon mark-selective coho fishery. Seven days per week, 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).	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • May 22 through September 7 (C.6). All salmon except coho, except as noted above in the all-salmon mark-selective coho fishery. Seven days per week, 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).
OR/CA Border to Horse Mt. (California KMZ) • May 1 through September 7 (C.6). Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Eel, and Klamath rivers.	**OR/CA Border to Horse Mt. (California KMZ)** • May 9 through September 7 (C.6). Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Eel, and Klamath rivers.	**OR/CA Border to Horse Mt. (California KMZ)** • May 22 through September 7 (C.6). 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). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Eel, and Klamath rivers.

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 6 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Horse Mt. to Point Arena (Fort Bragg) • April 4 through November 8. Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • April 4 through November 8. Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2016, same as Alternative I.	**Horse Mt. to Point Arena (Fort Bragg)** • April 4 through September 7 (C.6). Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length through April 30, 24 inches thereafter (B). See gear restrictions and definitions (C.2, C.3). In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).
Point Arena to Pigeon Point (San Francisco) • April 4 through November 8. Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through April 30, 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3). In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).	**Point Arena to Pigeon Point (San Francisco)** • April 4 through November 8. Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through April 30, 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3). In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).	**Point Arena to Pigeon Point (San Francisco)** • April 4 through September 7 (C.6). 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). In 2016, same as Alternative II.
Pigeon Point to U.S./Mexico Border (Monterey South) • April 4 through October 4. Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through April 30, 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3). In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).	**Pigeon Point to U.S./Mexico Border (Monterey)** • April 4 through October 4. Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through May 31, 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3). In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).	**Pigeon Point to U.S./Mexico Border (Monterey)** • April 4 through September 7 (C.6). 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). In 2016, same as Alternative II.
California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the state. (California Code of Regulations Title 14 Section 1.73)		

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 7 of 9)

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

Area (when open)		Chinook	Coho	Pink
North of Cape Falcon		24.0	16.0	None
Cape Falcon to Humbug Mt.		24.0	16.0	None
Humbug Mt. to OR/CA Border		24.0	16.0	None
OR/CA Border to Horse Mountain	Alt. I & II	20.0	-	20.0
	Alt. III	24.0	-	24.0
Horse Mt. to Pt. Arena	Alt. I & II	20.0	-	20.0
	Alt. III ≤ April 30	20.0	-	20.0
	Alt. III ≥ May 1	24.0	-	24.0
Pt. Arena to Pigeon Pt.	Alt. I & II ≤ April 30	24.0	-	24.0
	Alt. I & II ≥ May 1	20.0	-	20.0
	Alt. III	24.0	-	24.0
Pigeon Pt. To U.S./Mexico Border	Alt. I ≤ April 30	24.0	-	24.0
	Alt. I ≥ May 1	20.0	-	20.0
	Alt. II ≤ May 31	24.0	-	24.0
	Alt. II ≥ June 1	20.0	-	20.0
	Alt. III	24.0	-	24.0

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).

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2015. (Page 8 of 9)
C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

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. [Note: ODFW regulations in the state-water fishery off Tillamook Bay may allow the use of barbed hooks to be consistent with inside regulations.]

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.

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).

TABLE 2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 9 of 9)
C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

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 Salmon Advisory Subpanel (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 coho. To remain consistent with preseason expectations, any inseason action shall consider, if significant, the difference between observed and preseason forecasted mark rates. Such a consideration may also include a change in bag limit of two salmon, no more than one of which may be a coho.

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

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

TABLE 3. Treaty Indian troll management Alternatives adopted by the Council for ocean salmon fisheries, 2015. (Page 1 of 2)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall Treaty-Indian TAC: 66,250 Chinook and 50,000 coho. 2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall Treaty-Indian TAC: 54,000 Chinook and 40,000 coho. 2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall Treaty-Indian TAC: 40,000 Chinook and 30,000 coho. 2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
• May 1 through the earlier of June 30 or 33,125 Chinook quota. All salmon except coho. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season (C.5). See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 33,125 Chinook quota, or 50,000 coho quota. All Salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 27,000 Chinook quota. All salmon except coho. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 27,000 Chinook quota, or 40,000 coho quota. All salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 20,000 Chinook quota. All salmon except coho. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 20,000 Chinook quota, or 30,000 coho quota. All salmon. See size limit (B) and other restrictions (C).

TABLE 3. Treaty Indian troll management Alternatives adopted by the Council for ocean salmon fisheries, 2015. (Page 2 of 2)

B. MINIMUM SIZE (Inches)

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

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

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

S'KLALLAM - Washington State Statistical Area 4B (All).

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 - That portion of the FMA between 48°07'36" N. lat. (Sand Pt.) and 47°31'42" N. lat. (Queets River) and east of 125°44'00" W. long.

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

QUINAULT - That portion of the FMA between 47°40'06" N. lat. (Destruction Island) and 46°53'18"N. lat. (Point Chehalis) and east of 125°44'00" W. long.

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 will continue a ceremonial and subsistence fishery during the time frame of September 15 through October 15 in the same manner as in 2004-2014. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2015 season (estimated harvest during the October ceremonial and subsistence fishery: 20 Chinook; 40 coho).

C.4. Area Closures
- a. The area within a six nautical mile radius of the mouths of the Queets River (47°31'42" N. lat.) and the Hoh River (47°45'12" N. lat.) will be closed to commercial fishing.
- b. A closure within two nautical miles of the mouth of the Quinault River (47°21'00" N. lat.) may be enacted by the Quinault Nation and/or the State of Washington and will not adversely affect the Secretary of Commerce's management regime.

C.5. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:
- a. Chinook remaining from the May through June treaty-Indian ocean troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline on a fishery impact equivalent basis.

TABLE 4. Chinook and coho harvest quotas and guidelines (*) for 2015 ocean salmon fishery management Alternatives adopted by the Council.

Fishery or Quota Designation	Chinook for Alternative I	Chinook for Alternative II	Chinook for Alternative III	Coho for Alternative I	Coho for Alternative II	Coho for Alternative III
NORTH OF CAPE FALCON						
TREATY INDIAN OCEAN TROLL[a/]						
U.S./Canada Border to Cape Falcon (All Except Coho)	33,125	27,000	20,000	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	33,125	27,000	20,000	50,000	40,000	30,000
Subtotal Treaty Indian Ocean Troll	66,250	54,000	40,000	50,000	40,000	30,000
NON-INDIAN COMMERCIAL TROLL[b/]						
U.S./Canada Border to Cape Falcon (All Except Coho)	40,200	39,300	35,000	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	26,800	19,700	18,000	20,800	25,600	22,400
Subtotal Non-Indian Commercial Troll	67,000	59,000	53,000	20,800	25,600	22,400
RECREATIONAL						
U.S./Canada Border to Cape Falcon (All Except Coho)[c/]	10,000	10,000	10,000	-	-	-
U.S./Canada Border to Cape Alava[b/]	8,400 *	8,100 *	7,500 *	15,720	13,980	12,230
Cape Alava to Queets River[b/]	2,700 *	2,600 *	2,400 *	3,930	3,490	3,060
Queets River to Leadbetter Pt.[b/]	27,900 *	26,900 *	24,800 *	55,950	49,730	43,510
Leadbetter Pt. to Cape Falcon[b/d/]	15,000 *	14,400 *	13,300 *	83,600	67,200	58,800
Subtotal Recreational	64,000	62,000	58,000	159,200	134,400	117,600
TOTAL NORTH OF CAPE FALCON	197,250	175,000	151,000	230,000	200,000	170,000
SOUTH OF CAPE FALCON						
COMMERCIAL TROLL[a/]						
Humbug Mt. to OR/CA Border	4,000	3,300	2,500	-	-	-
OR/CA Border to Humboldt South Jetty	10,000	3,000	-	-	-	-
Subtotal Commercial Troll	14,000	6,300	2,500	-	-	-
RECREATIONAL						
Cape Falcon to Oregon/California Border	-	-	-	70,000 [e/]	67,500 [e/]	48,000 [e/]
TOTAL SOUTH OF CAPE FALCON	14,000	6,300	2,500	70,000	67,500	48,000

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/ Quotas are mark-selective for Chinook, equivalent to unmarked quotas of 4,000.

d/ Does not include Buoy 10 fishery. Expected catch in August and September: Alternative I - 63,100 marked coho; Alternative II - 66,300 marked coho; Alternative III - 70,700 marked coho.

e/ The quota consists of both mark-selective and non-mark-selective quotas: 60,000 and 10,000 in Alternative 1; 52,500 and 15,000 in Alternative II; 40,000 and 8,000 in Alternative III, respectively.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2015 ocean fishery Alternatives adopted by the Council.[a/] (Page 1 of 3)

Key Stock/Criteria	Projected Ocean Escapement[b/] or Other Criteria (Council Area Impacts in Parens) Alternative I	Alternative II	Alternative III	Spawner Objective or Other Comparative Standard as Noted
CHINOOK				
Columbia Upriver Brights	508.7	509.4	510.0	74.0 Minimum ocean escapement to attain 60.0 adults over McNary Dam, with normal distribution and no mainstem harvest.
Mid-Columbia Brights	115.2	115.4	115.5	14.9 Minimum ocean escapement to attain 0.9 adults for Umatilla and 4.5 for Little White Salmon and Bonneville Hatchery egg-takes, assuming average conversion and no mainstem harvest.
Columbia Lower River Hatchery Tules	95.2	96.9	98.6	25.0 Minimum ocean escapement to attain 14.5 adults for hatchery egg-take, with average conversion and no lower river mainstem or tributary harvest.
Columbia Lower River Natural Tules (threatened)	**41.5%**	39.9%	38.2%	≤ 41.0% Total adult equivalent fishery exploitation rate (2015 NMFS ESA guidance).
Columbia Lower River Wild[c/] (threatened)	19.3	19.3	19.3	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	161.1	166.7	172.7	8.2 Minimum ocean escapement to attain 7.0 adults for Spring Creek Hatchery egg-take, assuming average conversion and no mainstem harvest.
Snake River Fall (threatened) SRFI	50.6%	46.1%	43.2%	≤ 70.0% Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).
Klamath River Fall	40,700	40,700	40,700	40,700 MSY natural area adult spawners
Federally recognized tribal harvest	50.0%	50.0%	50.0%	50.0% Equals 43.7, 43.6, and 43.8 (thousand) adult fish for Yurok and Hoopa Valley tribal fisheries.
Spawner Reduction Rate	58.9%	58.9%	58.9%	≤ 58.9% FMP
Adult river mouth return	119.4	119.6	119.2	NA Total adults.
Age 4 ocean harvest rate	16.0%	16.0%	16.0%	≤ 16.0% NMFS ESA consultation standard for threatened California Coastal Chinook.
KMZ sport fishery share	10.3%	10.0%	8.9%	
River recreational fishery share	31.1%	31.9%	30.5%	NA Equals 13.6, 13.9, and 13.4 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	17.9%	18.0%	14.8%	≤ 19% Age-3 ocean impact rate in fisheries south of Pt. Arena. In addition, the following season restrictions apply: Recreational- Pt. Arena to Pigeon Pt. between the first Saturday in April and the second Sunday in November; Pigeon Pt. to the U.S./Mexico Border between the first Saturday in April and the first Sunday in October. Minimum size limit ≥ 20 inches total length. Commercial- Pt. Arena to the U.S./Mexico border between May 1 and September 30, except Pt. Reyes to Pt. San Pedro between October 1 and 15 (Monday-Friday). Minimum size limit ≥ 26 inches total length (NMFS 2015 ESA Guidance).

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2015 ocean fishery Alternatives adopted by the Council.[a/] (Page 2 of 3)

Key Stock/Criteria	Projected Ocean Escapement[b/] or Other Criteria (Council Area Impacts in Parens) Alternative I	Alternative II	Alternative III	Spawner Objective or Other Comparative Standard as Noted
Sacramento River Fall	342.8	335.8	327.8	≥ 195.6 2015 preseason ACL.
Sacramento Index exploitation rate	47.4%	48.5%	49.7%	≤ 70.0% FMP.
Ocean commercial impacts	167.8	176.6	187.1	All Alternatives include fall (Sept-Dec) 2014 impacts (17.9 thousand SRFC).
Ocean recreational impacts	85.6	84.8	83.7	All Alternatives include fall 2014 impacts (7.8 thousand SRFC).
River recreational impacts	55.8	54.7	53.4	No guidance in 2015.
Hatchery spawner goal	Met	Met	Met	22.0 Aggregate number of adults to achieve egg take goals at Coleman, Feather River, and Nimbus hatcheries.
COHO				
Interior Fraser (Thompson River)	9.5% (4.7%)	8.8% (4.0%)	7.9% (3.1%)	≤ 10.0% 2015 Southern U.S. exploitation rate ceiling; PSC coho agreement.
Skagit	38.4% (4.5%)	37.9% (3.8%)	37.3% (3.0%)	≤ 60.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Stillaguamish	32.8% (3.1%)	32.4% (2.7%)	31.9% (2.1%)	≤ 50.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Snohomish	31.5% (3.1%)	31.1% (2.7%)	30.6% (2.1%)	≤ 60.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Hood Canal	53.9% (4.9%)	53.5% (4.2%)	53.0% (3.3%)	≤ 65.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Strait of Juan de Fuca	12.3% (3.8%)	11.9% (3.4%)	11.1% (2.6%)	≤ 20.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Quillayute Fall	9.8	9.9	10.0	6.3 FMP MSY adult spawner estimate.[d/] Value depicted is ocean escapement.
Hoh	4.3	4.4	4.5	2.0 FMP MSY adult spawner estimate.[d/] Value depicted is ocean escapement.
Queets Natural	6.1	6.2	6.3	5.8 FMP MSY adult spawner estimate.[d/] Value depicted is ocean escapement.
Grays Harbor	127.3	128.2	129.8	24.4 FMP MSY adult spawner estimate.[d/] Value depicted is ocean escapement.
Willapa Bay Natural	37.7	38.1	38.9	17.2 FMP MSY adult spawner estimate. Value depicted is ocean escapement.
Lower Columbia River Natural (threatened)	14.4%	13.4%	10.6%	≤ 23% Total marine and mainstem Columbia R. fishery exploitation rate (2015 NMFS ESA guidance). Value depicted is ocean fishery exploitation rate only. Bolded values identify ocean exploitation rates that, when combined with 2014 freshwater harvest rates, will exceed the total allowable exploitation rate.
Upper Columbia[f/]	>50%	>50%	>50%	≥ 50% Minimum percentage of the run to Bonneville Dam.
Columbia River Hatchery Early	301.5	315.3	333.0	41.2 Minimum ocean escapement to attain hatchery egg-take goal of 21.8 early adult coho, with average conversion and no mainstem or tributary fisheries.
Columbia River Hatchery Late	145.6	155.5	168.3	8.8 Minimum ocean escapement to attain hatchery egg-take goal of 6.3 late adult coho, with average conversion and no mainstem or tributary fisheries.
Oregon Coastal Natural [b/g/]	13.4%	11.4%	8.8%	≤ 15.0% Marine and freshwater fishery exploitation rate (NMFS ESA consultation standard). Value depicted is ocean fishery exploitation rate only. When combined with anticipated freshwater impacts, exploitation rates will meet, but not exceed, NMFS guidance.
Southern Oregon/Northern California Coast (threatened)	6.7%	6.8%	6.0%	≤ 13.0% Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard).

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2015 ocean fishery Alternatives analyzed by the STT.[a/] (Page 3 of 3)

a/ Projections in the table assume a WCVI mortality for coho of the 2014 preseason fishing effort scalars. Chinook fisheries in Southeast Alaska, North Coast BC, and WCVI troll and outside sport fisheries were assumed to have the same fishing effort scalars as expected preseason in 2014, as modified by the 2008 PST agreement. Assumptions for these Chinook fisheries will be changed prior to the April meeting when allowable catch levels for 2015 under the PST are known.

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 coho include all marine impacts prior to the Buoy 10 fishery. Exploitation rates for OCN coho represent marine 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 minor contributions from East Fork Lewis River and Sandy River.

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. Total exploitation rate includes Alaskan, Canadian, Council area, Puget Sound, and freshwater fisheries and is calculated as total fishing mortality divided by total fishing mortality plus spawning escapement. These total exploitation rates reflect the initial base package for inside fisheries developed by state and tribal comanagers. It is anticipated that total exploitation rates will be adjusted by state and tribal comanagers during the preseason planning process to comply with stock specific exploitation rate constraints.

e/ The co-managers will work throughout the North of Falcon/Pacific Fishery Management Council process to explore additional harvest opportunity for pink salmon, Chinook salmon, and other species as the current Chinook conservation constraints allow.

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

g/ Alternative I modeled as if 11,000 of the marked coho quota was rolled into the 10,000 non-mark-selective coho quota in September. The resulting 21,000 non-mark-selective coho quota in September in this simulation did not result in an increase to the projected impacts for LCN coho, but impacts for OCN coho increased by 2.2 percent for a marine exploitation rate of 13.4 percent.

TABLE 6. Preliminary projections of Chinook and coho harvest impacts for 2015 ocean salmon fishery management Alternatives adopted by the Council. (Page 1 of 2)

Area and Fishery	2015 Catch Projection			2015 Bycatch Mortality[a/] Projection			2015 Bycatch Projection[b/]			Observed in 2014	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
OCEAN FISHERIES[c/]:	**CHINOOK (thousands of fish)**										
NORTH OF CAPE FALCON											
Treaty Indian Ocean Troll	66.3	54.0	40.0	15.6	12.7	9.4	51.7	42.1	31.1	61.5	47.8
Non-Indian Commercial Troll	67.0	59.0	53.0	34.5	31.2	27.9	125.7	113.9	101.8	54.9	25.5
Recreational	64.0	62.0	58.0	16.4	15.9	15.0	97.5	94.6	89.0	42.3	10.5
CAPE FALCON TO HUMBUG MT.											
Commercial Troll	87.1	82.9	81.3	12.8	12.2	12.0	33.0	31.4	30.8	175.6	22.6
Recreational	7.9	7.4	7.2	0.9	0.8	0.8	2.9	2.8	2.7	9.3	0.9
HUMBUG MT. TO HORSE MT.											
Commercial Troll	15.2	7.5	3.7	2.2	1.1	0.5	5.7	2.8	1.4	16.7	3.2 [d/]
Recreational	22.7	21.7	19.8	2.5	2.4	2.1	8.4	8.1	7.4	22.6	2.8 [d/]
SOUTH OF HORSE MT.											
Commercial	145.9	159.2	162.0	21.5	23.4	23.8	55.3	60.3	61.4	165.9	24.4 [d/]
Recreational	82.9	82.9	77.9	9.0	9.0	8.4	26.1	26.1	24.5	58.9	6.1 [d/]
TOTAL OCEAN FISHERIES											
Commercial Troll	381.4	362.6	340.0	86.7	80.7	73.7	271.3	250.5	226.4	474.6	123.5
Recreational	177.5	174.0	162.9	28.7	28.0	26.3	134.9	131.5	123.6	133.1	20.4
INSIDE FISHERIES:											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	26.8	4.4 [d/]

TABLE 6. Preliminary projections of Chinook and coho harvest impacts for 2015 ocean salmon fishery management Alternatives adopted by the Council. (Page 2 of 2)

Area and Fishery	2015 Catch Projection			2015 Bycatch Mortality[a/] Projection			2015 Bycatch Projection[b/]			Observed in 2014	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
COHO (thousands of fish)											
NORTH OF CAPE FALCON											
Treaty Indian Ocean Troll[e/]	50.0	40.0	30.0	4.0	3.3	2.4	8.4	6.8	5.1	55.7	4.2
Non-Indian Commercial Troll[e/]	20.8	25.6	22.4	14.2	15.6	12.9	48.8	52.9	44.1	23.1	9.9
Recreational[e/]	159.2	134.4	117.6	34.6	29.4	25.4	156.6	133.2	115.0	139.8	20.4
SOUTH OF CAPE FALCON											
Commercial Troll	-	-	-	12.9	12.8	12.5	49.6	49.1	47.9	3.3	9.8
Recreational[e/]	70.0	67.5	48.0	23.2	20.6	17.3	111.6	98.2	84.8	82.8	22.4
TOTAL OCEAN FISHERIES											
Commercial Troll	70.8	65.6	52.4	31.1	31.7	27.8	106.8	108.8	97.1	82.1	23.9
Recreational	229.2	201.9	165.6	57.8	50.0	42.7	268.2	231.4	199.8	222.6	42.8
INSIDE FISHERIES:											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	63.1	66.3	70.7	13.9	14.1	14.5	55.6	55.7	56.9	57.7	10.3 [d/]

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

Commercial: 26%.

Recreational, north of Pt. Arena: 14%.

Recreational, south of Pt. Arena: 19% (based on the expected proportion of fish that will be caught using mooching versus trolling gear, and the HRMs of 42.2% and 14% for these two respective gear types).

b/ Bycatch calculated as dropoff mortality plus fish released.

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

d/ Based on reported released Chinook or coho.

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

TABLE 7. 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 2015 ocean fisheries management Alternatives adopted by the Council.

	Exploitation Rate (Percent)											
	LCN Coho			OCN Coho [a/]			RK Coho			LCR Tule Chinook		
Fishery	I	II	III	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	1.7%	1.7%
BRITISH COLUMBIA	0.1%	0.1%	0.1%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	13.0%	13.1%	13.2%
PUGET SOUND/STRAIT	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.4%	0.4%	0.4%
NORTH OF CAPE FALCON												
Treaty Indian Ocean Troll	2.1%	1.7%	1.2%	0.5%	0.4%	0.3%	0.0%	0.0%	0.0%	5.6%	4.6%	3.5%
Recreational	6.2%	5.1%	4.4%	1.1%	0.9%	0.8%	0.1%	0.0%	0.0%	3.6%	3.5%	3.2%
Non-Indian Troll	1.6%	1.9%	1.5%	0.4%	0.4%	0.4%	0.0%	0.0%	0.0%	7.8%	6.9%	6.2%
SOUTH OF CAPE FALCON												
Recreational:										0.1%	0.1%	0.1%
Cape Falcon to Humbug Mt.	3.0%	3.0%	2.1%	5.6%	6.0%	3.9%	0.4%	0.3%	0.2%			
Humbug Mt. to OR/CA border (KMZ)	0.1%	0.1%	0.0%	0.2%	0.3%	0.2%	0.5%	0.6%	0.5%			
OR/CA border to Horse Mt. (KMZ)	0.1%	0.1%	0.1%	0.4%	0.4%	0.3%	1.7%	1.7%	1.6%			
Fort Bragg	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.9%	0.9%	0.8%			
South of Pt. Arena	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.7%	0.7%	0.7%			
Troll:										1.5%	1.5%	1.5%
Cape Falcon to Humbug Mt.	0.8%	0.8%	0.8%	0.9%	0.9%	0.9%	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%	0.2%	0.0%	0.0%	0.4%	0.2%	0.0%			
Fort Bragg	0.0%	0.1%	0.0%	0.5%	0.6%	0.6%	1.2%	1.5%	1.3%			
South of Pt. Arena	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%			
BUOY 10	3.3%	3.3%	3.4%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	7.9%	8.1%	8.3%
ESTUARY/FRESHWATER	N/A	N/A	N/A	N/A	N/A	N/A	0.2%	0.2%	0.2%			
TOTAL	14.4%	13.4%	10.6%	13.4% [b/]	11.4%	8.8%	6.7%	6.8%	6.0%	**41.5%**	39.9%	38.2%

a/ Exploitation rates for OCN coho represent marine impacts. When combined with anticipated freshwater impacts, exploitation rates will meet, but not exceed, NMFS guidance.

b/ Modeled as if 11,000 of the marked coho quota was rolled into the 10,000 non-mark-selective coho quota in September. The resulting 21,000 non-mark-selective coho quota in September in this simulation did not result in an increase to the projected impacts for LCN coho, but impacts for OCN coho increased by 2.2 percent for a marine exploitation rate of 13.4 percent.

TABLE 8. Projected coho mark rates for 2015 fisheries under base period fishing patterns (percent marked).

Area	Fishery	June	July	August	Sept
Canada					
Johnstone Strait	Recreational	-	25%	22%	-
West Coast Vancouver Island	Recreational	42%	33%	42%	44%
North Georgia Strait	Recreational	42%	43%	42%	37%
South Georgia Strait	Recreational	33%	47%	38%	41%
Juan de Fuca Strait	Recreational	43%	45%	46%	42%
Johnstone Strait	Troll	50%	41%	23%	37%
NW Vancouver Island	Troll	43%	36%	34%	28%
SW Vancouver Island	Troll	48%	45%	45%	46%
Georgia Strait	Troll	50%	50%	52%	46%
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	54%	49%	47%	47%
Strait of Juan de Fuca (Area 6)	Recreational	51%	46%	47%	44%
San Juan Island (Area 7)	Recreational	39%	46%	43%	31%
North Puget Sound (Areas 6 & 7A)	Net	-	51%	43%	37%
Council Area					
Neah Bay (Area 4/4B)	Recreational	36%	51%	49%	54%
LaPush (Area 3)	Recreational	57%	55%	56%	39%
Westport (Area 2)	Recreational	63%	62%	59%	51%
Columbia River (Area 1)	Recreational	71%	70%	65%	67%
Tillamook	Recreational	62%	58%	53%	40%
Newport	Recreational	58%	54%	52%	39%
Coos Bay	Recreational	50%	47%	37%	23%
Brookings	Recreational	44%	33%	28%	11%
Neah Bay (Area 4/4B)	Troll	47%	48%	48%	47%
LaPush (Area 3)	Troll	51%	55%	49%	48%
Westport (Area 2)	Troll	46%	54%	57%	52%
Columbia River (Area 1)	Troll	65%	65%	62%	60%
Tillamook	Troll	59%	56%	56%	53%
Newport	Troll	56%	55%	51%	50%
Coos Bay	Troll	50%	47%	42%	29%
Brookings	Troll	39%	39%	42%	56%
Columbia River					
Buoy 10	Recreational	-	-	-	66%

TABLE 9. Preliminary projected exvessel value under Council-adopted 2015 non-Indian commercial troll regulatory Alternatives compared to 2014 and the 2010-2014 average (in inflation adjusted dollars).

		Exvessel Value (thousands of dollars)[a/]				
Management Area	Alternative	2015 Projected[b/]	2014 Actual	Percent Change from 2014	2010-2014 Average[c/]	Percent Change From 2010-2014 Average
North of Cape Falcon	I	5,273	4,077	+29%	3,261	+62%
	II	4,743		+16%		+45%
	III	4,252		+4%		+30%
Cape Falcon to Humbug Mt	I	6,325	12,095	-48%	5,412	+17%
	II	6,020		-50%		+11%
	III	5,907		-51%		+9%
Humbug Mt. to Horse Mt.	I	1,091	1,269	-14%	672	+62%
	II	537		-58%		-20%
	III	263		-79%		-61%
Horse Mt. to Pt. Arena	I	3,560	5,422	-34%	4,060	-12%
	II	3,771		-30%		-7%
	III	3,776		-30%		-7%
South of Pt. Arena	I	8,637	6,956	+24%	7,102	+22%
	II	9,550		+37%		+34%
	III	9,781		+41%		+38%
Total South of Cape Falcon	I	19,613	25,741	-24%	17,245	+14%
	II	19,877		-23%		+15%
	III	19,726		-23%		+14%
West Coast Total	I	24,886	29,818	-17%	20,506	+21%
	II	24,620		-17%		+20%
	III	23,979		-20%		+17%

a/ Exvessel values are not comparable to the community income impacts shown in Table 10.
b/ Dollar value estimates are based on expected catches in the Council management area, 2014 exvessel prices and 2014 average weight per fish.
c/ Values are inflation-adjusted to 2014 dollars.

TABLE 10. Preliminary projected angler trips and coastal community income impacts generated under Council-adopted 2015 recreational ocean salmon fishery regulatory Alternatives compared to 2014 and the 2010-2014 average (in inflation adjusted dollars).

		Angler Trips (thousands)			Community Income Impacts (thousands of dollars)[a/]			Percent Change in Income Impacts	
Management Area	Alternative	Estimates Based on the Alternatives	2014 Actual	2010-2014 Avg.	Estimates Based on the Alternatives	2014 Actual	2010-2014 Avg.	Compared to 2014 Actual	Compared to 2010-2014 Avg.
North of Cape Falcon	I	168.8	125.0	91.6	33,547	24,838	18,551	+35%	+81%
	II	145.3			28,889			+16%	+56%
	III	129.5			25,733			+4%	+39%
Cape Falcon to Humbug Mt.	I	62.7	92.2	53.5	6,548	9,623	5,411	-32%	+21%
	II	57.8			6,036			-37%	+12%
	III	55.5			5,790			-40%	+7%
Humbug Mt. to Horse Mt.	I	42.9	37.7	33.8	5,731	5,040	4,545	+14%	+26%
	II	41.2			5,505			+9%	+21%
	III	38.4			5,138			+2%	+13%
Horse Mt. to Pt. Arena	I	20.7	17.5	14.1	4,136	3,485	2,796	+19%	+48%
	II	20.7			4,136			+19%	+48%
	III	19.9			3,977			+14%	+42%
South of Pt. Arena	I	107.0	82.2	76.9	24,551	18,841	16,936	+30%	+45%
	II	107.0			24,551			+30%	+45%
	III	98.1			22,505			+19%	+33%
Total South of Cape Falcon	I	233.4	229.5	178.3	40,965	36,989	29,687	+11%	+38%
	II	226.8			40,228			+9%	+36%
	III	212.0			37,410			+1%	+26%
West Coast Total	I	402.1	354.5	269.8	74,512	61,827	48,237	+21%	+54%
	II	372.1			69,116			+12%	+43%
	III	341.4			63,143			+2%	+31%

a/ Income impacts are not comparable to the exvessel values shown in Table 9. All dollar values are inflation-adjusted to 2014 dollars.

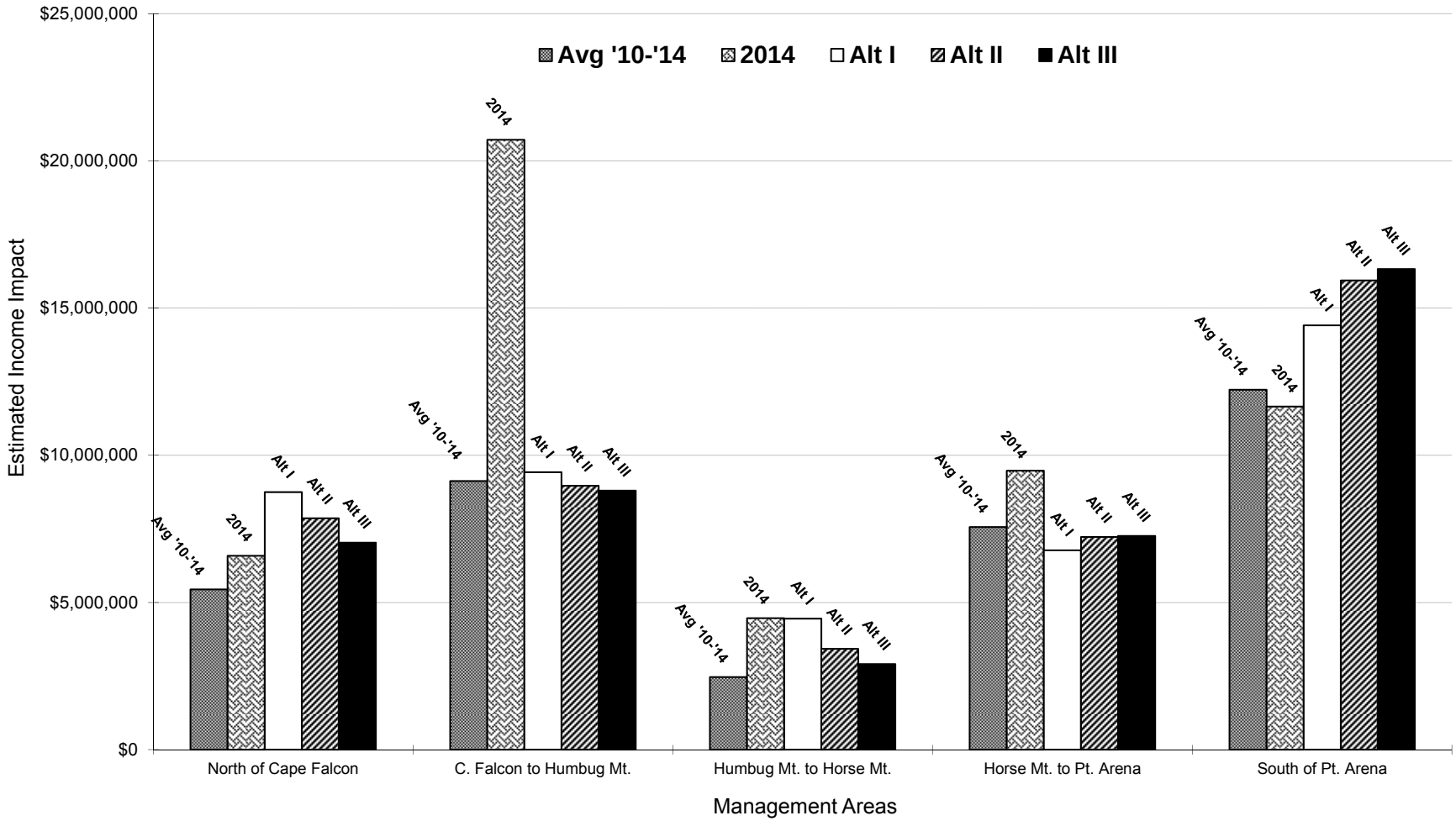

FIGURE 1. Projected community income impacts associated with landings projected under the Council adopted 2015 commercial fishery Alternatives compared to 2014 and the 2010-2014 average (in inflation-adjusted dollars).

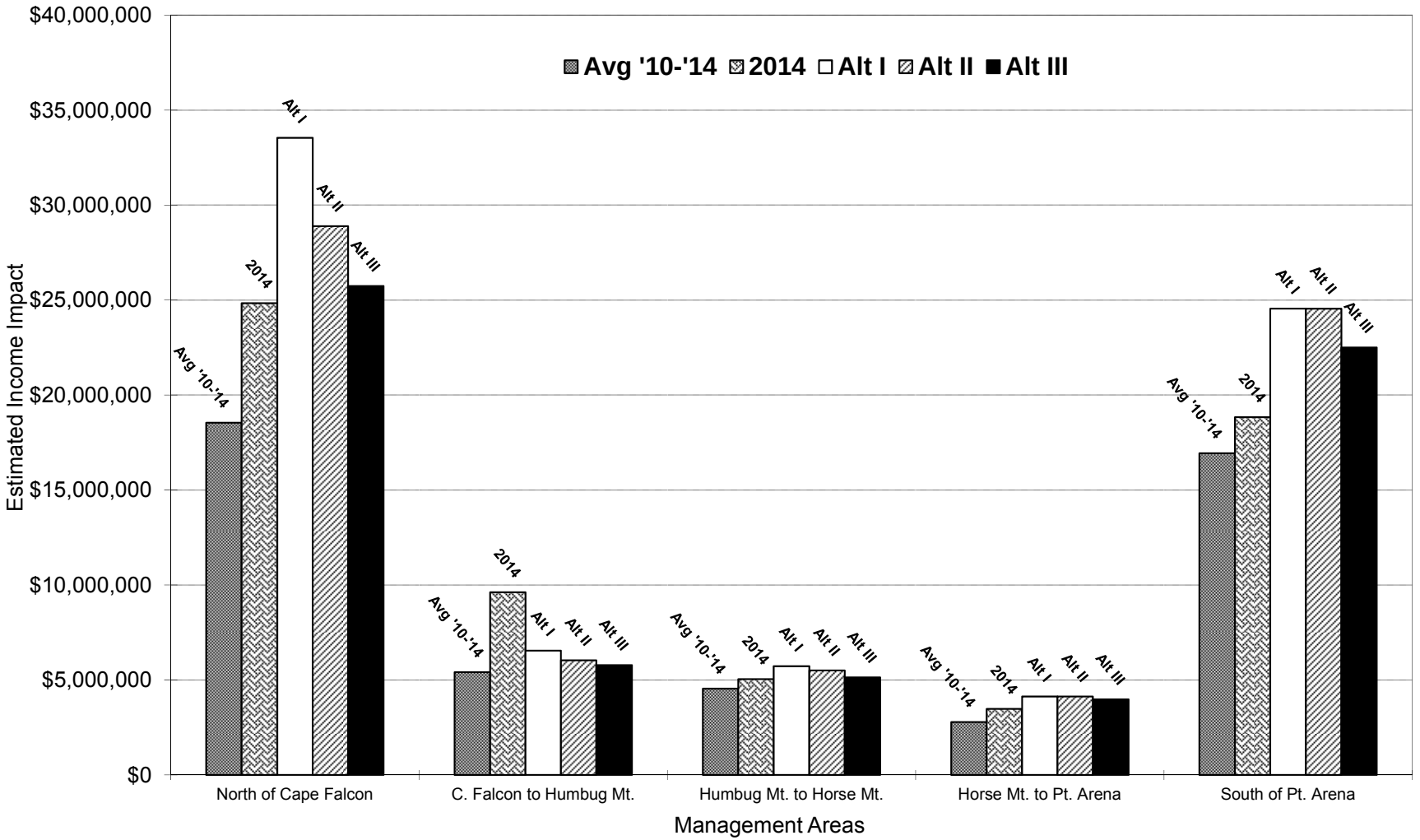

FIGURE 2. Projected community income impacts associated with angler effort projected under the Council adopted 2015 recreational fishery Alternatives compared to 2014 and the 2010-2014 average (in inflation-adjusted dollars).

APPENDIX A: PROJECTED IMPACT RATES AND HARVEST FOR AGE-3 SACRAMENTO RIVER WINTER CHINOOK AND AGE-4 KLAMATH 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 2015 fishing season Alternatives. The impacts are displayed as a percent for each Alternative by fishery, port area, and month. Max rate: 19.0.

Commercial

Alternative I **17.9 Total**

Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.18	0.39	0.40	0.18	0.01	0.08			1.23
MO	0.39	0.46	0.47	0.77	0.13				2.22
Total	0.57	0.84	0.87	0.95	0.14	0.08			**3.45**

Alternative II **18.0 Total**

Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.17	0.63	0.40	0.24	0.01	0.08			1.52
MO	0.36	0.78	0.53	0.78	0.13				2.58
Total	0.53	1.41	0.93	1.02	0.14	0.08			**4.10**

Alternative III **14.8 Total**

Port Area	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.18	0.79	0.44	0.19					1.60
MO	0.39	1.18	0.52	0.79					2.89
Total	0.57	1.97	0.96	0.98					**4.48**

Recreational

Alternative I

Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.15	0.97	1.33	1.92	0.57	0.05	0.24	0.03		5.27
MO	0.98	1.08	2.21	3.64	1.20	0.09	0.00			9.19
Total	1.13	2.05	3.54	5.56	1.77	0.14	0.24	0.03		**14.47**

Alternative II

Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.15	0.97	1.34	1.92	0.57	0.05	0.24	0.03		5.28
MO	0.98	0.52	2.23	3.64	1.20	0.09	0.00			8.64
Total	1.13	1.49	3.57	5.56	1.77	0.14	0.24	0.03		**13.92**

Alternative III

Port Area	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Total
SF	0.15	0.42	0.82	1.50	0.52	0.01				3.43
MO	0.98	0.52	1.39	2.92	1.10	0.02				6.92
Total	1.13	0.94	2.21	4.42	1.62	0.03				**10.35**

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 age-4 ocean harvest by fishery and Alternative. In 2015, a harvest of 11,378 age-4 KRFC results in a 16% ocean harvest rate.

Commercial

Alternative I 16.0% Total

Port	Fall 2014		Summer 2015						Summer	Year
Area	Sept	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	17			111	206	72	66	213	668	685
CO	80			296	339	246	373	737	1,991	2,071
KO					55	212	91	45	403	403
KC					847	145	46	54	1,092	1,092
FB						1,276	2,314	618	4,208	4,208
SF					376	386	756	75	1,593	1,593
MO					89	35	70	1	195	195
Total	97			407	1,913	2,372	3,717	1,743	10,152	10,249
										14.4%

Alternative II 16.0% Total

Port	Fall 2014		Summer 2015						Summer	Year
Area	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	17			111	206	73	66	211	667	684
CO	80			296	339	249	373	732	1,989	2,069
KO					55	170	73	44	342	342
KC										
FB					246	1,894	2,610	360	5,110	5,110
SF					360	626	755	99	1,840	1,840
MO					80	60	79	1	220	220
Total	97			407	1,288	3,072	3,956	1,448	10,171	10,268
										14.4%

Alternative III 16.0% Total

Port	Fall 2014		Summer 2015						Summer	Year
Area	Sep	Oct-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO	17			111	206	73	66	238	694	711
CO	80			296	339	251	376	823	2,085	2,165
KO					55	128	46	45	274	274
KC										
FB						1,643	2,529	620	4,792	4,792
SF					376	790	827	76	2,069	2,069
MO					89	90	77	1	257	257
Total	97			407	1,066	2,975	3,920	1,802	10,170	10,267
										14.4%

Recreational

Alternative I

Port	Fall 2014			Summer 2015						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO								8	4	12	12
CO	29					2	7	20	12	41	70
KO						2	20	49	152	223	223
KC						100	126	115	198	539	539
FB					2	20	46	61	14	143	143
SF					22	14	49	47	2	134	134
MO					17	3	5	11	1	37	37
Total	29				42	140	253	310	383	1,128	1,157
											1.6%

Alternative II

Port	Fall 2014			Summer 2015						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO								8	2	10	10
CO	29					2	7	20	11	40	69
KO						2	20	49	151	222	222
KC						74	127	115	197	513	513
FB					2	20	47	61	14	144	144
SF					22	14	50	47	2	135	135
MO					17	3	5	11	1	37	37
Total	29				42	114	256	310	377	1,099	1,128
											1.6%

Alternative III

Port	Fall 2014			Summer 2015						Summer	Year
Area	Sep	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug	Total	Total
NO								8	2	10	10
CO	29					2	4	20	11	37	66
KO						1	20	49	152	222	222
KC						32	128	116	198	474	474
FB					2	20	47	61	14	144	144
SF					22	14	50	47	2	135	135
MO					17	3	5	11	1	37	37
Total	29				42	71	255	312	380	1,060	1,089
											1.5%

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. [2]*Available information indicates that Pacific Coast salmon fisheries are not likely 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 salmon ocean 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 14 (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 2008: Biological Opinion on 2008 Ocean Fisheries Effects on Southern Resident Killer Whales

[2] The eastern DPS of Steller sea lions was delisted under the ESA on November 4, 2013 (78 *FR* 66140).

This document constitutes the National Marine Fisheries Service's (NMFS) biological opinion regarding the effects of the 2008-2009 Pacific coast salmon fisheries on the Southern Resident killer whale distinct population segment. The fisheries assessed by this Opinion are fisheries are managed under the jurisdiction of the Pacific Fisheries Management Council (PFMC) and target primarily Chinook and coho salmon, and pink salmon.

> *After reviewing the current status of the endangered population of Southern Resident killer whales and their critical habitat, the environmental baseline for the action area, the effects of the proposed actions, and cumulative effects, it is NMFS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the Southern Resident killer whales or adversely modify critical habitat.*

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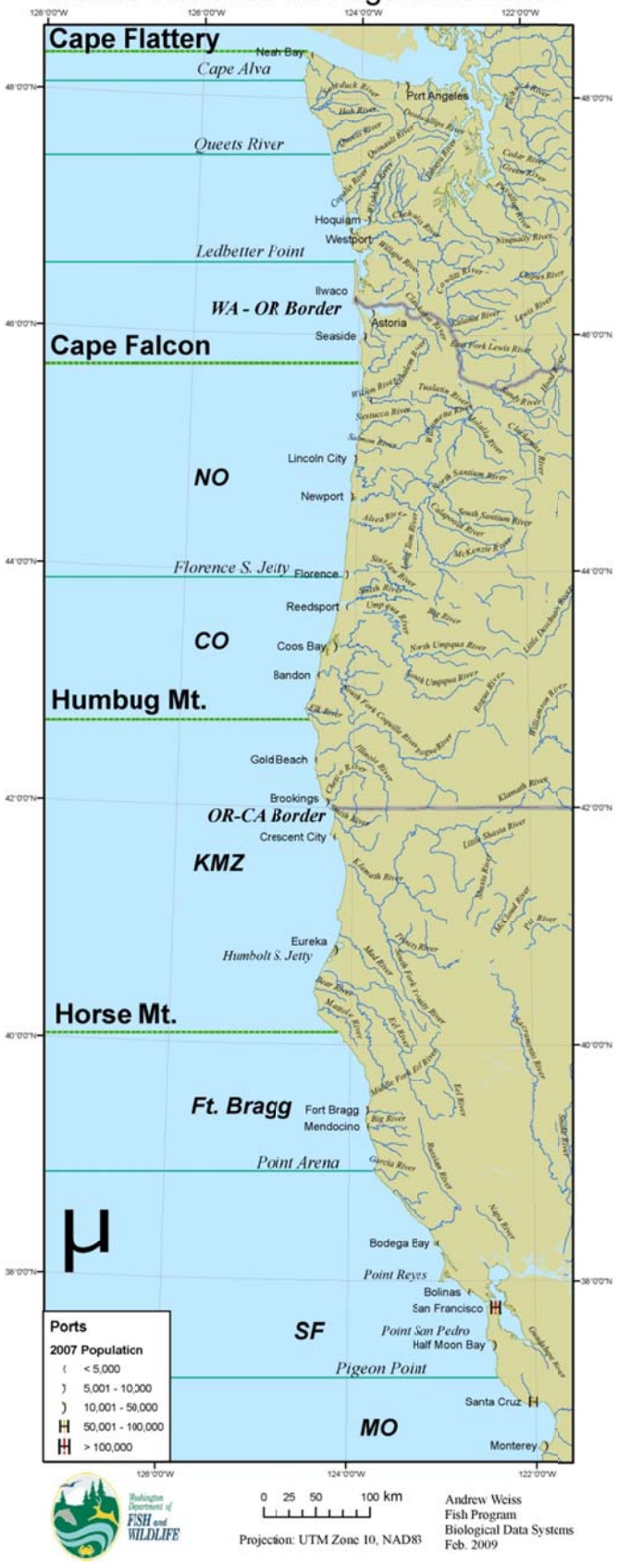
Marine Fisheries Management Zones



Washington Department of FISH and WILDLIFE

Andrew Weiss
Fish Program
Biological Data Systems
Feb. 2009

ENVIRONMENTAL ASSESSMENT PART 3
FOR 2015 OCEAN SALMON FISHERY REGULATIONS

REGULATION IDENTIFIER NUMBER 0648-XD843

BASED ON

PRESEASON REPORT III
COUNCIL ADOPTED MANAGEMENT MEASURES

APRIL 2015

Note to the reader:

This document has been prepared by the National Marine Fisheries Service based on information from the Pacific Fishery Management Council and follows the same format as the Council's Preseason Report III for 2015. However, this document has been prepared prior to finalization of the Council's report, due to time constraints for implementing the 2015 ocean salmon management measures. This document was prepared solely for the purpose of completing the National Environmental Policy (NEPA) analysis for 2015 ocean salmon management measures. The Council will provide its Preseason Reports I, II, and III, on which this environmental assessment was based, on the Council's website: www.pcouncil.org.

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LIST OF ACRONYMS AND ABBREVIATIONS

AABM	Aggregate Abundance Based Management
AEQ	adult equivalent
BO	biological opinion
CDFW	California Department of Fish and Wildlife
Council	Pacific Fishery Management Council
CPUE	catch per unit effort
EEZ	Economic Exclusive Zone
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FMP	fishery management plan
FONSI	finding of no significant impact
FRAM	Fishery Regulation Assessment Model
GSI	genetic stock identification
IPHC	International Pacific Halibut Commission
ISBM	Individual Stock Based Management
KMZ	Klamath Management Zone
KRFC	Klamath River fall Chinook
LCN	lower Columbia River natural (coho)
LCR	lower Columbia River (natural tule Chinook)
LRH	lower river hatchery (tule fall Chinook returning to hatcheries below Bonneville Dam)
LRW	lower river wild (Columbia River fall Chinook, primarily from the North Lewis River)
MSY	maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
OCN	Oregon coastal natural (coho)
OPI	Oregon Production Index
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
RER	rebuilding exploitation rate
RMP	Resource Management Plan
RK	Rogue/Klamath (hatchery coho)
SAS	Salmon Advisory Subpanel
SCH	Spring Creek Hatchery (tule fall Chinook returning to Spring Creek Hatchery)
SI	Sacramento index
SONCC	Southern Oregon/Northern California Coast (coho)
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
WCVI	West Coast Vancouver Island
WDFW	Washington Department of Fish and Wildlife

1.0 INTRODUCTION

This is the last in a series of three preseason reports prepared by the Pacific Fishery Management Council's (Council) Salmon Technical Team (STT) and staff. The reports document and help guide salmon fishery management in the exclusive economic zone (EEZ) from 3 to 200 nautical miles off the coasts of Washington, Oregon, and California, and within state territorial waters. This report summarizes the STT analysis of the 2015 ocean salmon fishery management measures adopted by the Council for submission to the U.S. Secretary of Commerce and characterizes their expected impacts on ocean salmon fisheries and the stocks which support them.

This report also constitutes the third and final part of an Environmental Assessment (EA) to comply with National Environmental Policy Act (NEPA) requirements for the 2015 ocean salmon regulations and includes a description and analysis of a Proposed Action. An EA is used to determine whether an action being considered by a Federal agency has significant environmental impacts. The second part of the EA (Preseason Report II; PFMC 2015c) presented a statement of the purpose and need, a description of the affected environment, a description of 2015 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 2015b) 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 this report, these three parts of the EA will provide the necessary components to determine if a finding of no significant impact (FONSI) or Environmental Impact Statement (EIS) is warranted.

The Council's recommendations for the 2015 ocean salmon fishery regulations meet all objectives of the FMP (Section 3), including Annual Catch Limits (ACLs) set according to the FMP and described in Preseason Report I; the level of protection required by all consultation standards for salmon species listed under the Endangered Species Act (ESA) (Section 4), and; the obligations under the Pacific Salmon Treaty (PST) (Section 5).

2.0 SELECTION OF FINAL MANAGEMENT MEASURES (PREFERRED ALTERNATIVE)

The following figures and tables describe the Council-adopted management measures covering the period from May 1, 2015, to April 30, 2016:

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

In addition, Tables 5, 6, and 7 provide information on the biological impacts and landing estimates for the Council's management recommendations. Table 8 displays the expected mark (healed adipose fin-clip) rate for coho encountered in Council adopted mark-selective fisheries.

The 2015 seasons are constrained primarily by: (1) threatened California coastal Chinook and Klamath River fall Chinook (KRFC) south of Cape Falcon, (2) endangered Sacramento River winter Chinook (SRWC) south of Point Arena, (3) threatened lower Columbia River (LCR) natural tule fall Chinook north of Cape Falcon, (4) threatened Oregon coastal natural (OCN) coho and Queets River coho north of the OR/CA border, and (5) Puget Sound Chinook and Interior Fraser (Thompson River) coho north of Cape Falcon.

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

2.1 Inseason Management

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

Inseason actions that are anticipated for the 2015-2016 management season include, but are not limited to, the following possibilities:

1. Adjustments in landing limits and days open for non-Indian commercial fisheries.
2. Changing the days or number of days of fishing allowed per calendar week for recreational fisheries.
3. Transfer of coho quotas among recreational port areas north of Cape Falcon.
4. Trading portions of Chinook and coho quotas between recreational and non-Indian commercial sectors north of Cape Falcon.
5. Routine openings and closings, and other management measures associated with quota management, including modifying open areas, bag limits, species retention limits, and mark-selective retention restrictions.
6. Transferring unused or exceeded quota to subsequent fisheries on an impact neutral, fishery equivalent, basis.
7. Closing Oregon recreational and commercial fisheries scheduled to open March 15, 2016 if necessary to meet 2016 management objectives.
8. Closing California recreational fisheries scheduled to open April 2, 2016, or commercial fisheries scheduled to open April 16, 2016, if necessary to meet 2016 management objectives.

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

2.2 State Waters Fisheries

In addition to the seasons shown in Tables 1 and 2, the Oregon Department of Fish and Wildlife (ODFW) may permit fall fisheries for salmon in certain areas within state marine waters. Potential seasons off the Oregon coast include commercial and recreational fisheries at the mouths of the Chetco and Elk rivers. Washington may also establish limited recreational salmon fisheries in state marine waters if additional impacts on critical coho and/or Chinook stocks can be accommodated within management constraints. California will not establish any additional state marine water salmon fisheries in 2015.

3.0 SALMON FISHERY MANAGEMENT PLAN REQUIREMENTS

The Council's 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 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 FMP. These requirements include ESA consultation standards, international treaties, and tribal trust responsibilities. The FMP requires consistency with NMFS' biological opinions for salmon stocks listed under the ESA. Section 4.0 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 5.

The FMP requires compliance with relevant terms of the PST. Section 5.0 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 5.

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

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

The Yurok and Hoopa Valley tribes are entitled to 50 percent of the total KRFC harvest, which is calculated as a harvest of KRFC equal to that taken in all non-tribal 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 FMP includes formulas for sharing Chinook and coho quotas north of Cape Falcon between commercial and recreational sectors, and among recreational port subareas, and for coho south of Cape Falcon between commercial and recreational sectors. The 2015 salmon management measures adopted by the Council meet the allocation requirements for fisheries north of Cape Falcon in the FMP. There were insufficient coho available for a directed commercial harvest south of Cape Falcon; therefore, the FMP allocation schedule guidance was to determine allocation of allowable impacts during the preseason process.

4.0 SPECIES LISTED UNDER THE ENDANGERED SPECIES ACT

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

ESU	Status	Federal Register Notice			
		Most Recent		Original Listing	
Chinook					
Sacramento River Winter	Endangered	76 FR 50447	8/15/2011	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
Low er 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
Chum					
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
Coho					
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
Low er Columbia River	Threatened	76 FR 50448	8/15/2011		
Sockeye					
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 ESA listings have occurred, NMFS has initiated formal consultations and issued biological opinions (BOs) that consider the impacts resulting from implementation of the 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 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)
4/30/2010	Sacramento River winter Chinook (until reinitiated)
4/30/2004	Puget Sound Chinook (until reinitiated)
6/13/2005	California coastal Chinook (until reinitiated)
4/9/2015	Lower Columbia River natural coho (until reinitiated)
4/26/2012	Lower Columbia River Chinook (until reinitiated)

Amendment 12 to the 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 March 3, 2015, NMFS provided guidance on protective measures for species listed under the ESA during the 2015 fishing season. The letter summarized the requirements of NMFS' BOs on the effects of potential actions under the FMP on listed salmon and provided the anticipated consultation standards of the BOs in preparation for the 2015 management season, as well as further guidance and recommendations for the 2015 management season.

The ESA consultation standards, exploitation rates, and other criteria in place for the 2015 management season are presented in Table 5. 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 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 SRWC, Central Valley spring Chinook, California coastal Chinook, Snake River wild (SRW) fall Chinook, LCR fall Chinook, and all of the coho stocks. Additional listed salmonid ESUs found within the Council area, but not substantively impacted by Council-managed fisheries, include:

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

5.0 OBLIGATIONS UNDER THE PACIFIC SALMON TREATY (PST)

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

5.1 Chinook Salmon Management

The current Chinook agreement under the PST was negotiated in 2008 and formally accepted by both the U.S. and Canada in December of 2008. This agreement took effect on January 1, 2009, and included a 30 percent reduction in the catch ceilings for aggregate abundance based management (AABM) fisheries off the West Coast Vancouver Island (WCVI) and a 15 percent reduction in the catch ceilings for AABM fisheries in Southeast Alaska Chinook relative to the catch ceilings in effect for these fisheries since 1999. Under the terms of the 2009 PST Agreement, Council fisheries for Chinook salmon continue to be subject to the individual stock based management (ISBM) provisions of Annex 4, Chapter 3, adopted in 1999. These provisions require the adult equivalent (AEQ) exploitation rate by all U.S. fisheries south of the U.S./Canada

border be reduced by 40 percent from the 1979-1982 base period for Chinook indicator stocks identified in Attachment V of the Pacific Salmon Treaty that fail to achieve their management objectives.

Many Chinook stocks of concern to the Council are affected by fisheries off Canada and Alaska. Maximum allowable catches by AABM fishery complexes off the WCVI, Northern British Columbia, and Southeast Alaska are determined through the annual calibration of the PSC Chinook Model. Canadian fisheries that are not included in AABM complexes are managed under ISBM constraints, which require a 36.5 percent reduction in AEQ exploitation rates relative to the 1979-1982 base period on Chinook indicator stocks identified in Attachment IV of the Pacific Salmon Treaty that fail to achieve their management objectives. Expectations for Canadian and Alaskan fisheries harvest and stock abundance forecasts are incorporated into the Chinook Fishery Regulation Assessment Model (FRAM) to estimate total exploitation rate impacts from all marine fisheries (Table 5).

Key considerations for Canadian domestic fishery management for Chinook in 2015 include, (1) meeting domestic conservation obligations for Strait of Georgia and Fraser River stream-type stocks; (2) Chinook harvests by native fisheries; and (3) incidental impacts during commercial and native fisheries directed at sockeye, and chum salmon. The fishery regulatory package off WCVI was driven by levels of allowable impact on WCVI and Lower Strait of Georgia Chinook and Interior Fraser (Thompson River) coho.

5.2 Coho Salmon Management

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

The categorical status of U.S. coho management units is reported to comply with obligations pursuant to the 2002 PST Southern Coho Management Plan. Categorical status is employed by the PSC under the 2002 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 2002 PST Southern Coho Management Plan uses the thresholds and stepped exploitation 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 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 Washington coastal coho management units, a range is reported for the allowable exploitation rates based on the relationship between the preseason abundance forecast and the upper and lower values of the spawning escapement goal ranges. Maximum exploitation rates are computed using the lower end of the escapement range and minimum exploitation rates are computed using the upper end of the escapement range. For

purposes of reporting the categorical status, an allowable exploitation rate is computed using the mid-point of the escapement goal range. However, the maximum allowable exploitation rate allowed under the PST is 65 percent.

For 2015, Puget Sound and Washington coast coho constraints are as follows:

FMP

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

PST Southern Coho Management Plan

U.S. Management Unit	Total Exploitation Rate Constraint[b/]	Categorical Status[c/]
Skagit	60%	Abundant
Stillaguamish	50%	Abundant
Snohomish	60%	Abundant
Hood Canal	65%	Abundant
Strait of Juan de Fuca	20%	Low
Quillayute Fall[c/]		Low
Hoh[c/]		Moderate
Queets[c/]		Low
Grays Harbor		Abundant

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

b/ Preliminary. For Puget Sound and Washington Coast management units, the exploitation rate constraints reflect application of the 2002 PST Southern Coho Management Plan.

c/ Categories (Abundant, Moderate, Low) correspond to the general exploitation rate ranges depicted in paragraph 3(a) of the 2002 PST Southern Coho Management Plan. For Washington Coast stocks, categorical status is determined by taking the midpoint of the range of exploitation rates associated with achieving the escapement goal ranges. The exploitation rate ranges are based on preseason abundance forecasts and the upper and lower ends of the escapement goal ranges. Maximum exploitation rates are computed using the lower end of the escapement range; minimum exploitation rates are computed using the upper end of the escapement range.

Key considerations for Canadian fishery management for coho in 2015 are expected to include, (1) meeting domestic conservation obligations for Interior Fraser (including Thompson River) coho; (2) coho harvests by First Nations fisheries; (3) incidental impacts during commercial and First Nations fisheries directed at Chinook, sockeye, pink, 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 will be driven by Canadian domestic allowable impacts on the Thompson River component of the Interior Fraser management unit.

The projected status of Canadian coho management units in 2015 indicates continuing concerns for the condition of Interior Fraser coho. The Interior Fraser coho management remains in low status, constraining the total mortality fishery exploitation rate for 2015 Southern U.S. fisheries to a maximum of 10.0 percent.

6.0 CHINOOK SALMON MANAGEMENT

6.1 North of Cape Falcon

Abundance projections important to Chinook harvest management north of Cape Falcon in 2015 are:

- *Columbia River hatchery tules*. Combined production of Lower River Hatchery (LRH) and Spring Creek Hatchery (SCH) stocks returning to the Columbia River is predicted to be 255,400, which is higher than the 2014 preseason expectation of 225,100. The 2015 LRH forecast abundance is 94,900, lower than the forecast of 110,000 in 2014. The 2015 SCH forecast abundance is 160,500, which is higher than last year's forecast of 115,100.

6.1.1 Objectives

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

- NMFS consultation standards and annual guidance for ESA-listed stocks as provided in Section 4.0 above. Relevant stocks for the area north of Cape Falcon include LCR natural tule Chinook, Columbia Lower River Wild (LRW) fall Chinook, SRW fall Chinook, and Puget Sound Chinook.

6.1.2 Achievement of Objectives

Fishery quotas under the adopted management measures are presented in Table 4. Stock-specific management criteria and their forecast values are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality estimates are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCR tule Chinook.

- *LCR natural tule fall Chinook.* The projected exploitation rate for 2015 in combined marine and mainstem Columbia River fisheries is 40.0 percent, below the 41.0 percent maximum. LCR natural tule fall Chinook will not constrain ocean fisheries north of Cape Falcon in 2015.

- *LRW fall Chinook:* The adopted management measures have a projected ocean escapement of 19,400 adults, which is more than enough to meet the ESA consultation standard of an adult spawning escapement of at least 5,700 in the North Fork Lewis River. LRW Chinook will not constrain ocean fisheries north of Cape Falcon in 2015.

- *SRW fall Chinook*. The adopted management measures have an ocean exploitation rate of 45.9 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 2015.

- *Puget Sound Chinook:* Incorporating the impacts from the State and Tribal co-managers list of agreed to fisheries for inside Puget Sound and the Tribal and Washington Technical Group's analysis of reduction in impacts in Area 3 and 4 non-Treaty commercial fisheries, all constraints for Puget Sound stocks are met. Puget Sound Chinook, specifically Lake Washington and Nisqually Chinook, are the constraining stocks for Chinook fisheries north of Cape Falcon in 2015.

The adopted management measures 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 (Table 5).

6.2 South of Cape Falcon

Status of Chinook stocks important to 2015 Chinook harvest management south of Cape Falcon are:

- *Sacramento River Fall Chinook (SRFC).* The 2015 Sacramento Index (SI) forecast is 652,000 SRFC adults, which is higher than the 2014 preseason forecast of 634,700.

- *KRFC.* The age-3 forecast is 342,200 KRFC. The age-4 forecast is 71,100 fish, and the age-5 forecast is 10,400. Last year's preseason forecast was 219,800 age-3, 67,400 age-4, and 12,100 age-5 fish.

- *SRWC.* No abundance forecast is made for this stock. The geometric mean of the most recent three years of escapement (2012 through 2014) is 3,659 fish, which represents an increase in this metric relative to last year. The Council considered information on the impacts of ongoing drought on California salmon stocks, particularly SRWC, including estimated freshwater mortality of 95 percent of the 2014 SRWC brood year juveniles, as well as information developed by California Department of Fish and Wildlife on time and area vulnerability of SRWC to commercial and recreational fisheries.

6.2.1 Objectives

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

- NMFS consultation standards and annual guidance for ESA-listed stocks as provided in Section 4.0 above. Relevant stocks for the area south of Cape Falcon include SRWC, California coastal Chinook, SRW fall Chinook, and LCR natural tule Chinook.

6.2.2 Achievement of Objectives

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

- *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 the adopted management measures.

- *SRWC.* The ESA consultation standard that (1) limits the age-3 impact rate in 2015 fisheries south of Point Arena to a maximum of 19.0 percent and (2) specifies time/area closures and minimum size limit constraints south of Point Arena, is met by the adopted management measures. Council guidance, provided by the California Department of Fish and Wildlife (CDFW), to limit the age-3 impact rate to a maximum of 17.9 percent in 2015 fisheries is also met by the adopted management measures.

- *KRFC.* The control rule-defined minimum of 40,700 natural area adult spawners is met by the adopted management measures.

- *SRFC.* The control rule-defined minimum of 195,596 (preseason ACL) hatchery and natural area adult spawners is met by the adopted management measures.

- *LCR natural tule fall Chinook.* The 2015 maximum exploitation rate of 41.0 percent is met by the adopted management measures.

- *SRW fall Chinook.* SRW Chinook will not constrain ocean fisheries south of Cape Falcon in 2015.

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

7.0 COHO SALMON MANAGEMENT

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

- *OPI Hatchery coho.* The 2015 forecast for hatchery coho from the Columbia River and the coast south of Cape Falcon of 808,400 is lower than the 2014 forecast of 983,100. The Columbia River early coho forecast is 515,200 compared to the 2014 forecast of 526,600 and the Columbia River late coho forecast is 261,900, compared to the 2014 forecast of 437,500.

- *OCN coho.* The 2015 OCN forecast is 206,600 compared to the 2014 forecast of 230,600.

- *LCN coho.* The 2015 LCN forecast is 35,100 compared to the 2014 forecast of 33,100.

- *Queets wild coho.* The 2015 Queets wild coho forecast is 7,500 compared to the 2014 forecast of 10,300.

- *Puget Sound coho.* Among Puget Sound natural stocks, Skagit, Snohomish, Stillaguamish and Hood Canal are in the normal category in 2015, and Strait of Juan de Fuca is in the critical category.

- *Interior Fraser (Thompson River) coho.* This Canadian stock continues to be depressed, and will constrain 2015 ocean coho fisheries north of Cape Falcon.

7.1 Objectives

Key coho management objectives shaping management measures in 2015 Council area fisheries are:

- NMFS consultation standards and annual guidance for ESA-listed stocks are provided in Section 4.0. 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. Based on this guidance, the maximum allowable exploitation rates for 2015 are: a combined marine/freshwater exploitation rate not to exceed 15.0 percent for OCN coho, a combined exploitation rate in marine-area and mainstem Columbia River fisheries not to exceed 23.0 percent for LCN coho, and 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.

- FMP conservation objectives and obligations under the PST Southern Coho Management Plan for stocks originating along the Washington coast, Puget Sound, and British Columbia as provided in Section 5.2. In 2015, Interior Fraser and Queets wild coho are the key management stocks for ocean fisheries north of Cape Falcon. Based on 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.

7.2 Achievement of Objectives

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

- *LCN coho.* The adopted management measures satisfy the maximum 23.0 percent exploitation rate for combined marine and mainstem Columbia River fisheries, with a marine exploitation rate of 13.6 percent and a mainstem Columbia River exploitation rate of 9.4 percent.

- *OCN coho.* The adopted management measures satisfy the maximum 15.0 percent exploitation rate for combined marine and freshwater fisheries, with a marine exploitation rate of 11.4 percent and a freshwater exploitation rate of 3.5 percent.

  Interior Fraser coho. The Southern U.S. exploitation rates in the adopted management measures comply with the 10.0 percent maximum required by the PST Southern Coho Management Plan.

- *Queets wild coho.* The adopted management measures provide an ocean escapement number of 6,200 which meets management objectives agreed to by WDFW and the treaty tribes.

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

8.0 PINK SALMON MANAGEMENT

Pink salmon are sufficiently abundant to merit management consideration in 2015. Impacts on Chinook and coho in pink-directed fisheries may be part of negotiations to reach a final agreement in North of Cape Falcon ocean and Puget Sound fisheries.

9.0 IMPORTANT FEATURES OF THE ADOPTED MANAGEMENT MEASURES

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

9.1 Commercial

Adopted management measures in the area north of Cape Falcon are similar to those adopted in 2014 with slightly higher Chinook total allowable catches (TACs) and lower coho TACs, because of higher abundance of Columbia River fall Chinook and lower abundance of OPI hatchery coho.

Sixty percent of the non-Indian troll Chinook quota is assigned to the May-June fishery, which opens initially seven days per week with a landing and possession limit of 60 Chinook per vessel per trip in the area between the U.S./Canada border and the Queets River. The summer all-salmon fishery is open July 1 through 7, then Friday through Tuesday and includes Chinook and coho landing and possession limits similar to recent years. In both fisheries, Chinook sub-quotas of no more than 9,000 in the spring and 11,000 in the summer were applied to the area between the U.S./Canada border and the Queets River; a Chinook subquota of no more than 15,000 was also applied to the area between Leadbetter Point and Cape Falcon during the spring fishery. A

preseason trade of 8,000 coho from the commercial troll fishery for 2,000 Chinook from the recreational fishery was adopted.

The commercial fishery in the area south of Cape Falcon is constrained by the California coastal Chinook consultation standard that limits the forecasted KRFC age-4 ocean harvest rate to a maximum of 16 percent and the 41 percent exploitation rate limit on ESA-listed LCR tule Chinook. Commercial fisheries south of Point Arena are also constrained by (1) the maximum allowable age-3 impact rate of 19.0 percent on ESA-listed SRWC, (2) CDFW guidance to craft fisheries that result in a SRWC age-3 impact rate no higher than 17.9 percent, (3) and CDFW guidance regarding the closing dates for fisheries south of Point Arena. The 2015 forecast of the Sacramento Index (SI) is sufficiently large such that Sacramento River fall Chinook (SRFC) will not constrain fisheries this year.

For the north and central Oregon coast south of Cape Falcon, Chinook fisheries opened on April 1 and will run through the end of September, with a five day closure between late August and early September. Weekly landing and possession limits will be in place for September fishery

For the Oregon KMZ, the Chinook fishery opened on April 1 and will run through May. The months of June, July, August, and September have month-specific quotas with daily landing and possession limits. Unused or exceeded quota from June and/or July can be transferred to the following quota period through August on an impact neutral, fishery equivalent basis.

For the California KMZ, the adopted management measures allow for a September quota fishery with daily landing and possession limits.

The Fort Bragg area will have some fishing opportunity for each month between May and September. The entire month of May will be open while June and July will have closures for the beginning portions of those months. August and September will be open with the exception of a five day closure at the end of August.

Fisheries from Point Arena to the U.S./Mexico border will be open from May 1 through the end of July, with approximately one week closures at the beginning of both June and July. For the area between Point Arena to Pigeon Point (the San Francisco management area), the fishery will continue through September, with a short closure at the end of August. The Monday through Friday fall area target zone fishery between Point Reyes and Point San Pedro will occur in October. For areas south of Pigeon Point, the fishery will end earlier than the SF management area owing to protective measures intended for SRWC. These measures include a closing date of August 15 for the area between Pigeon Point and Point Sur and a closing date of July 31 for the area south of Point Sur.

9.2 Recreational

In the area between the U.S. Canada Border and Cape Falcon, an area-wide mark-selective Chinook fishery was adopted; starting and ending dates differ between subareas, opening on May 15 in the Neah Bay and La Push subareas and on May 30 in the Westport and Columbia River subareas. The fishery will be open for a total of 18 days in the northern subareas and 14 days in the southern subareas and is operating under a coastwide quota of 10,000 marked Chinook.

The all-salmon recreational fisheries in the subareas between the U.S. Canada Border and Cape Falcon open on June 13, and operate under regulations similar to recent years. Chinook guidelines are increased compared with 2014, and coho subarea quotas are reduced relative to 2014. No Area 4B add-on fishery is scheduled in 2015.

For the north and central Oregon coast south of Cape Falcon, the Chinook fishery opened March 15 and will run uninterrupted through October. Coho fisheries consist of a mark-selective coho quota fishery beginning in late June for the area from Cape Falcon to the Oregon/California border and a non-mark-selective coho quota fishery beginning on September 4 for the area from Cape Falcon to Humbug Mountain. Any quota remaining from the mark-selective coho fishery may be transferred to the non-mark-selective quota on an impact neutral basis.

Chinook fishing in both the Oregon and California KMZ will open May 1 and run through September 7. The mark-selective coho quota fishery described above will allow for marked coho retention in the Oregon KMZ. The minimum size limit will be 24 inches in the Oregon KMZ and 20 inches in the California KMZ.

South of the KMZ, all areas opened on April 4. The fishery in the Fort Bragg area will be open through November 8 with a 20 inch minimum size limit. In the San Francisco area, the minimum size limit will be 24 inches through April 30, then 20 inches until the end of the season on October 31. The Monterey management area will be split into north and south at Point Sur; in both areas the minimum size limit will be 24 inches through May 31. In the Monterey north area, the minimum size limit will be 20 inches from June 1 through the end of the season, September 7. In the Monterey south area, the minimum size limit will be 20 inches from June 1 through the end of the season, July 19. The closing dates in areas south of Point Arena reflect management measures intended to reduce mortality on SRWC.

9.3 Treaty Indian

The adopted management measures are generally similar in structure as in recent years. Chinook and coho quotas in 2015 are decreased, somewhat, from 2014, due to decreased abundance of Columbia River hatchery Chinook, lower abundance of OPI hatchery coho, and the less restrictive standard for LCN coho specified in the NMFS guidance for 2015. The Treaty Indian troll fishery opens on May 1 with a Chinook only fishery and runs until June 30 with a 30,000 sub-quota. The all-salmon fishery will open July 1 until September 15 with a sub-quota of 30,000 Chinook and 42,500 coho. The Treaty Indian fishery management areas are located between the U.S./Canada border and Pt. Chehalis, Washington (Table 3, C.1).

10.0 SOCIOECONOMIC IMPACTS OF THE ADOPTED MANAGEMENT MEASURES

10.1 Economic Impacts

The short-term economic effects of the Council-adopted management measures for non-Indian fisheries are shown in Tables 9 and 10. Table 9 shows projected commercial troll impacts by catch area expressed in terms of estimated potential exvessel value. Table 10 shows projected recreational fisheries impacts by management area in terms of the number of projected angler-trips and community personal income impacts generated by those activities. Note that exvessel revenue values shown for the commercial troll fishery in Table 9 and income impact values shown for the recreational fishery in Table 10 are not directly comparable. More directly comparable measures of short-term economic impacts from commercial and recreational salmon fisheries appear in Figures 3 and 4, which show estimated community income impacts under the Council-adopted commercial troll and recreational fishery management measures, respectively, compared to historic levels in real (inflation-adjusted) dollars. Income impacts indicate the amount of income generated by the economic linkages associated with an activity. While reductions in income impacts may not necessarily reflect a net loss coastwide, they likely do indicate losses to businesses and individuals in affected communities that depend on that activity for their livelihood.

Total economic effects may vary from what is indicated by the short-term impacts from ocean fisheries activities reported in Tables 9 and 10 and Figures 3 and 4. Salmon that remain unharvested in the ocean do not necessarily represent an economic loss, as they may augment inside harvests, provide additional

spawning escapement, or contribute to ocean abundance in subsequent years. Restricting ocean harvests may increase opportunities for inside harvesters (e.g., higher commercial revenue or more angler trips) or contribute to higher inside catch per unit effort (CPUE) representing lower costs for commercial harvesters and/or higher success rates for recreational fishers. Salmon that remain unharvested by both ocean fisheries and inside fisheries may impact future production, although the magnitude of this effect varies depending on the biology of the affected stocks, habitat, and environmental factors.

Exvessel revenues in Table 9 are based on estimated harvest by catch area while commercial income impacts in Figure 3 (and Table 11) are based on projected deliveries by landing area. Historically there has been a divergence between these two measures. The difference is due to deliveries of salmon caught in certain catch areas to ports serving neighboring catch areas. This pattern is particularly true for areas between Humbug Mountain Oregon and Point Arena California. In an attempt to account for this effect, landings and income impacts were assigned based on historically observed transfer patterns. The patterns are typically inferred from the most recent year's catch and landings data. For example, in 2014 there were substantial deliveries of salmon caught between Cape Falcon and Humbug Mountain to landing ports to the south in the Oregon KMZ, and a substantial amount of salmon caught between Horse Mountain and Point Arena or in the San Francisco were landed to the north in the California KMZ region. There were also transfers of harvests between other catch areas and landings ports but these were smaller by comparison.

The expected harvests used to model commercial fishery impacts are taken from Table 6. The prior year's exvessel prices were assumed to be the best indicator of prices expected in the coming season. Coastwide average exvessel Chinook prices in 2014 were 10 percent lower in inflation-adjusted terms than the prior year, and only slightly above their 2012 level, which was the lowest inflation-adjusted average price since 2005. The average weight per fish landed in 2014 was slightly above the 2010-2014 average. However, if in 2015, actual exvessel prices, average weight per fish, and/or transfers between catch areas and landing ports diverge substantially from the values assumed for these projections, then the actual distribution of commercial fisheries revenue and associated income impacts may differ from the values shown in Table 9 and Figure 3.

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 year 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. Recreational fishery effort north of Cape Falcon was estimated using historical CPUE estimates applied to salmon quotas under the Alternatives. For the summer mark-selective coho fishery, coho quotas North of Cape Falcon, although somewhat lower than last year, are still relatively high compared with the recent past. Chinook quotas are somewhat higher than last year. For modeling projected economic impacts of the summer recreational coho fishery, the average 2014 Washington coho CPUE was applied to the coho quota under each Alternative. For the June Chinook fisheries Alternatives, average 2011-2013 Washington Chinook CPUE was applied. However, if in 2015, actual CPUE or availability of coho and chinook salmon in the recreational fishery diverge substantially from the values assumed for these projections, then the actual distribution of recreational fisheries effort and associated income impacts may differ from the values shown in Table 10 and Figure 4.

10.1 Community Impacts

Projected income impacts by coastal region for commercial and recreational salmon fisheries under the Proposed Action are shown in Figure 3 and Figure 4, and comparisons of impacts under the Proposed Action with the other Alternatives are summarized in Table 11. Projected income impacts from commercial

salmon landings and processing under the Proposed Action are within the range analyzed under the Alternatives, and overall are about 18 percent below estimated total coastwide commercial fisheries income impacts from last year (Table 11). Regionally, commercial fisheries income impacts under the Proposed Action are projected to be higher than last year North of Cape Falcon and South of Point Arena, but lower than last year in areas between Cape Falcon and Humbug Mountain, in the KMZ, and Fort Bragg management areas. Compared with the 2010-2014 inflation-adjusted average, commercial fisheries income impacts under the Proposed Action are projected to be higher North of Cape Falcon, in the KMZ and South of Point Arena, but slightly lower in areas between Cape Falcon and Humbug Mountain, and in the Fort Bragg management area (Figure 3).

Projected income impacts from expenditures by recreational salmon anglers under the Proposed Action are within the range analyzed under the Alternatives, and overall are about 17 percent above the estimated total coastwide recreational fisheries income impact from last year (Table 11). Regionally, recreational fisheries income impacts under the Proposed Action are projected to be lower than last year in areas between Cape Falcon and Humbug Mountain, but at least somewhat higher than last year's estimate in areas North of Cape Falcon, in the KMZ, Fort Bragg management area, and South of Point Arena. Compared with the 2010-2014 inflation-adjusted average, recreational fisheries income impacts under the Proposed Action are projected to be at least somewhat higher in all management areas (Figure 4).

10.2 Social Impacts

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

To the extent practicable, social impacts were considered when non-tribal commercial and recreational salmon seasons were shaped. To minimize regulatory complexity in recreational fisheries, season dates and regulations were kept relatively consistent within major management areas (North of Cape Falcon, Cape Falcon to Humbug Mountain, Klamath Management Zone, South of Point Area). Minimum size limits either remain consistent throughout the season or decrease during the season, which, in addition to biological benefits, tend to increase regulatory compliance. Efforts were made to include important cultural events such as the Independence Day and Labor Day holidays as well as traditional fishing derby events. Commercial fisheries often include vessel limits per trip or per open period as an effort to stretch quota attainment over a greater period of time. Doing so can provide greater access for smaller vessels, increase safety at sea by making it easier to avoid inclement weather, and improve marketability of landings. Notification mechanisms by phone or email allow commercial vessels greater flexibility in choosing a port of landing to take advantage of better markets or access to improved infrastructure.

Salmon are an import part of tribal culture and have been since time immemorial. Salmon provide economic, cultural, ceremonial, and subsistence benefits to west coast tribal communities. Under the proposed action, Washington coastal treaty tribes are projected to have similar salmon fishery opportunities relative to 2014. Due in part to an improved forecast for KRFC, the Klamath River tribal allocation under the Proposed Alternative is 43,581, an improvement over the 2014 allocation of 27,294.

11.0 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The Proposed Action, adoption of the 2015 ocean salmon regulations, was assessed relative to the environmental components and criteria established in Preseason Report II (Part 2 of this EA). The impacts of the Proposed Action on most target stocks and ESA-listed salmon fall within the range of impacts analyzed for the Alternatives in Preseason Report II. For stocks where the impacts of the Proposed Action fall outside the range of impacts under the Alternatives in Preseason Report II (Skagit coho, Snohomish coho, Hood Canal coho, Stillaguamish coho, Strait of Juan de Fuca coho, Interior Fraser coho, and SONCC coho), such impacts differ only in small amounts from those of the Alternatives and are within the impact limitations of the FMP, ESA consultation standards, and Pacific Salmon Treaty (Table 11). Economic impacts of the Proposed Action fall within the range of impacts projected for the Alternatives in Preseason Report II.

The No-Action Alternative would result in at least three stocks not meeting conservation objectives, and thus would not meet the purpose and need of the Proposed Action. Under No Action, the seasons would be the same as in 2014. Given that in aggregate the 2015 stock abundances are expected to be relatively similar to the 2014 fishery, the economic values generated by the 2014 fishery serve as the best estimate of the No Action Alternative. Comparisons to 2014 provided in Tables 9 and 10 and Figures 3 and 4 provide an indicator of the expected impact of the Action Alternative relative to No Action. Relative to No Action, as represented by the 2014 values, the Proposed Action would have slightly greater coastwide economic impacts from recreational fishing and slightly lower coastwide economic impacts from commercial fishing.

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

TABLE 1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2015.
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A. SEASON ALTERNATIVE DESCRIPTIONS

North of Cape Falcon

Supplemental Management Information

1. Overall non-Indian TAC: 131,000 (non-mark-selective equivalent of 125,000) Chinook and 170,000 coho marked with a healed adipose fin clip (marked).
2. Non-Indian commercial troll TAC: 67,000 Chinook and 19,200 marked coho.
3. Trade: Commercial troll traded 8,000 coho to the recreational fishery for 2,000 Chinook.

U.S./Canada Border to Cape Falcon

- May 1 through earlier of June 30 or 40,200 Chinook, no more than 9,000 of which may be caught in the area between the U.S./Canada border and the Queets River and no more than 15,000 may be caught in the area between, Leadbetter Pt. and Cape Falcon.

Seven days per week with a landing and possession limit of 60 Chinook per vessel per trip from the U.S./Canada Border to the Queets River (C.1). All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B). Vessels in possession of salmon north of the Queets River may not cross the Queets River line without first notifying WDFW at 360-902-2739 with area fished, total Chinook 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 360-902-2739 with area fished, total Chinook and halibut catch aboard, and destination. See compliance requirements and gear restrictions and definitions (C.2, C.3). When it is projected that 29,250 Chinook have been landed overall, or 6,750 Chinook have been landed in the area between the U.S./Canada border and the Queets River, or 11,250 Chinook have been landed in the area between Leadbetter Pt. and Cape Falcon, inseason action modifying the open period to five days per week and adding landing and possession limits will be considered to ensure the guideline is not exceeded. Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing or in possession of salmon while fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing or in possession of salmon while fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must 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 nfalcon.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).

U.S./Canada Border to Cape Falcon

- July 1 through earlier of September 22 or attainment of the quota of 26,800 Chinook, no more than 11,000 of which may be caught in the area between the U.S./Canada border and the Queets River or 19,200 marked coho (C.8.d).

July 1-7 then Friday through Tuesday July 10 through September 22 with a landing and possession limit of 50 Chinook and 50 coho per vessel per open period (C.1). Vessels in possession of salmon north of the Queets River may not cross the Queets River line without first notifying WDFW at 360-902-2739 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 360-902-2739 with area fished, total Chinook, coho, and halibut catch aboard, and destination. When it is projected that 19,500 Chinook have been landed overall, or 8,250 Chinook have been landed in the area between the U.S./Canada border and the Queets River, inseason action modifying the open period to five days per week and adding landing and possession limits will be considered to ensure the guideline is not exceeded. No earlier than September 1, if at least 5,000 marked coho remain on the quota, inseason action may be considered to allow non-selective coho retention (C.8). All salmon, except no chum retention north of Cape Alava, Washington in August and September (C.7). Chinook minimum size limit of 28 inches total length (B, C.1). All coho must be marked except as noted above (C.8.d). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones, and beginning August 9, Grays Harbor Control Zone closed (C.5). Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Vessels fishing or in possession of salmon while fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing or in possession of salmon while fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their 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 must 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 nfalcon.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).

TABLE 1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2015.
(Page 2 of 6)

A. SEASON ALTERNATIVE DESCRIPTIONS

South of Cape Falcon

Supplemental Management Information

1. Sacramento River fall Chinook spawning escapement of 341,017 adults.
2. Sacramento Index exploitation rate of 47.7%
3. Klamath River recreational fishery allocation: 14,133 adult Klamath River fall Chinook.
4. Klamath tribal allocation: 43,581 adult Klamath River fall Chinook.

Cape Falcon to Humbug Mountain

- April 1-August 27;
- September 2-30 (C.9.a).

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 fish in the State of Oregon. See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay.

Beginning September 2, no more than 60 Chinook per vessel per landing week (Thursday through Wednesday).

In 2016, the season will open March 15 for all salmon except coho. Chinook minimum size limit of 28 inches total length. Gear restrictions same as in 2015. This opening could be modified following Council review at its March 2016 meeting.

Humbug Mountain to OR/CA Border (Oregon KMZ)

- April 1-May 31;
- June 1 through earlier of June 30, or a 1,800 Chinook quota;
- July 1 through earlier of July 31, or a 1,000 Chinook quota;
- August 1 through earlier of August 27, or a 500 Chinook quota (C.9.a).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). Prior to June 1, all fish caught in this area must be landed and delivered in the State of Oregon.

June 1 through August 27, single daily landing and possession limit 30 Chinook per vessel per day (C.8.f). Any remaining portion of the June and/or July Chinook quotas may be transferred inseason on an impact neutral basis to the next open quota period. All vessels fishing in this area must land and deliver all fish within this area or Port Orford, within 24 hours of any closure of this fishery, and prior to fishing outside of this area. Oregon State regulations require all fishers landing salmon from any quota managed season within this area to notify ODFW within 1 hour of delivery or prior to transport away from the port of landing by either calling 541-867-0300 ext. 252 or sending notification via e-mail to KMZOR.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. See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

In 2016, the season will open March 15 for all salmon except coho, with a 28 inch Chinook minimum size limit. This opening could be modified following Council review at its March 2016 meeting.

OR/CA Border to Humboldt South Jetty (California KMZ)

- September 11 through earlier of September 30, or a 3,000 Chinook quota (C.9.b).

Five days per week, Friday through Tuesday. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). Landing and possession limit of 20 Chinook per vessel per day (C.8.f). All fish caught in this area must be landed within the area and 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. 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).

Humboldt South Jetty to Horse Mountain

Closed.

Horse Mountain to Point Arena (Fort Bragg)

- May 1-31;
- June 15-30;
- July 12-31;
- August 1-26;
- September 1-30 (C.9.b).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 statewide closure (C.6). When the CA KMZ fishery is open, all fish caught in the area must be landed south of Horse Mountain (C.6). During September, all fish must be landed north of Point Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

In 2016, the season will open April 16-30 for all salmon except coho, with a 27 inch Chinook minimum size limit and the same gear restrictions as in 2015. All fish caught in the area must be landed in the area. This opening could be modified following Council review at its March 2016 meeting.

TABLE 1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2015.
(Page 3 of 6)

A. SEASON ALTERNATIVE DESCRIPTIONS

Point Arena to Pigeon Point (San Francisco)

- May 1-31;
- June 7-30;
- July 8-31;
- August 1-29;
- September 1-30 (C.9.b).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length prior to September 1, 26 inches thereafter (B, C.1). All fish must be landed in California and offloaded within 24 hours of the August 29 closure (C.6). During September, all fish must be landed south of Point Arena (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

Point Reyes to Point San Pedro (Fall Area Target Zone)

- October 1-2, 5-9, and 12-15.

All salmon except coho (C.4, C.7). Chinook minimum size limit of 26 inches total length (B, C.1). All fish 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).

Pigeon Point to Point Sur (Monterey North)

- May 1-31;
- June 7-30;
- July 8-31;
- August 1-15 (C.9.b).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). All fish must be landed in California (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

Point Sur to U.S./Mexico Border (Monterey South)

- May 1-31;
- June 7-30;
- July 8-31 (C.9.b).

Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 27 inches total length (B, C.1). All fish must be landed in California (C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3).

California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the state. (California Fish and Game Code §8226)

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

	Chinook		Coho		
Area (when open)	Total Length	Head-off	Total Length	Head-off	Pink
North of Cape Falcon	28.0	21.5	16.0	12.0	None
Cape Falcon to OR/CA Border	28.0	21.5	-	-	None
OR/CA Border to Humboldt South Jetty	28.0	21.5	-	-	None
Horse Mt. to Pt. Arena	27.0	20.5	-	-	None
Pt. Arena to Pigeon Pt.					
Prior to August 30	27.0	20.5	-	-	None
Sept. 1 to October 15	26.0	19.5	-	-	None
Pigeon Pt. to U.S./Mexico Border	27.0	20.5	-	-	None

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. In that portion of the fishery management area off Oregon and Washington, the line or lines must be affixed to the vessel and must not be intentionally disengaged from the vessel at any time during the fishing operation.

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

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

C.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 and OSP at least 24 hours prior to sampling and provide the following information: the vessel name, date, location and time collection activities will be done. Any vessel collecting GSI samples in a closed area shall not possess any salmon other than those from which GSI samples are being collected. Salmon caught for collection of GSI samples must be immediately released in good condition after collection of samples.

C.5. Control Zone Definitions:

a. *Cape Flattery Control Zone* - The area from Cape Flattery (48º23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48º10'00" N. lat.) and east of 125º05'00" W. long.
b. *Mandatory Yelloweye Rockfish Conservation Area* – The area in Washington Marine Catch Area 3 from 48°00.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°16.50' W. long. to 48°00.00' N. lat.; 125°16.50' W. long. and connecting back to 48°00.00' N. lat.; 125°14.00' W. long.
c. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 55'36" N. lat., 124°10'51" W. long.).
d. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat.,124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.
e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately 6 nautical miles north of the Klamath River mouth); on the west, by 124°23'00" W. long. (approximately 12 nautical miles off shore); and on the south, by 41°26'48" N. lat. (approximately 6 nautical miles south of the Klamath River mouth).

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 amount 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 2016 for 2016 permits (*exact date to be set by the IPHC in early 2016*). Incidental harvest is authorized only during April, May, and June of the 2015 troll seasons and after June 30 in 2015 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 preseason IPHC 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.

May 1, 2015 through December 31, 2015 and April 1-30, 2016, license holders may land or possess no more than one Pacific halibut per each four Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 12 halibut may be possessed or landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).

Incidental Pacific halibut catch regulations in the commercial salmon troll fishery adopted for 2015, prior to any 2015 inseason action, will be in effect when incidental Pacific halibut retention opens on April 1, 2016 unless otherwise modified by inseason action at the March 2016 Council meeting.

a. "C-shaped" yelloweye rockfish conservation area is an area to be voluntarily avoided for salmon trolling. NMFS and the Council request salmon trollers voluntarily avoid this area in order to protect yelloweye rockfish. The area is defined in the Pacific Council Halibut Catch Sharing Plan in the North Coast subarea (Washington marine area 3), with the following coordinates in the order listed:
48°18' N. lat.; 125°18' W. long.;
48°18' N. lat.; 124°59' W. long.;
48°11' N. lat.; 124°59' W. long.;
48°11' N. lat.; 125°11' W. long.;
48°04' N. lat.; 125°11' W. long.;
48°04' N. lat.; 124°59' W. long.;
48°00' N. lat.; 124°59' W. long.;
48°00' N. lat.; 125°18' W. long.;
and connecting back to 48°18' N. lat.; 125°18' W. long.

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

a. Chinook remaining from the May through June non-Indian commercial troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline if the transfer would not result in exceeding preseason impact expectations on any stocks.
b. Chinook remaining from the June and/or July non-Indian commercial troll quotas in the Oregon KMZ may be transferred to the Chinook quota for the next open period if the transfer would not result in exceeding preseason impact expectations on any stocks.
c. NMFS may transfer fish between the recreational and commercial fisheries north of Cape Falcon if there is agreement among the areas' representatives on the Salmon Advisory Subpanel (SAS), and if the transfer would not result in exceeding preseason impact expectations on any stocks.
d. At the March 2016 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2015).
e. If retention of unmarked coho is permitted by inseason action, the allowable coho quota will be adjusted to ensure preseason projected impacts on all stocks is not exceeded.
f. Landing limits may be modified inseason to sustain season length and keep harvest within overall quotas.

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TABLE 1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2015.
(Page 6 of 6)

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

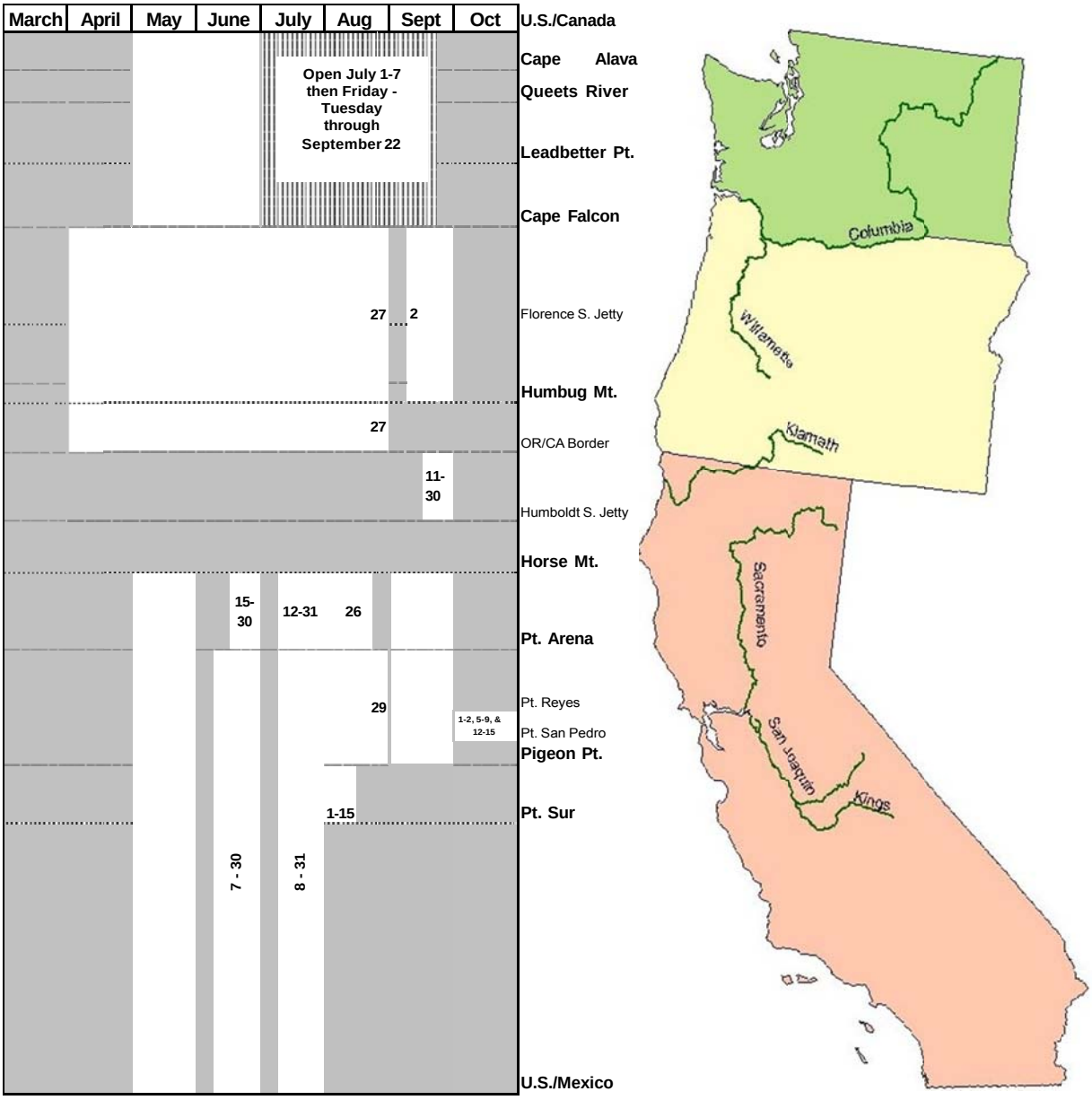

FIGURE 1. Council-adopted non-Indian commercial salmon seasons for 2015. Dates are the first or last days of the month unless otherwise specified.

TABLE 2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2015.
(Page 1 of 4)

A. SEASON ALTERNATIVE DESCRIPTIONS

North of Cape Falcon

Supplemental Management Information

1. Overall non-Indian TAC: 131,000 (non-mark-selective equivalent of 125,000) Chinook and 170,000 coho marked with a healed adipose fin clip (marked).
2. Recreational TAC: 64,000 (non-mark selective equivalent of 58,000) Chinook and 150,800 marked coho; all retained coho must be marked. 2,000 Chinook were traded to commercial troll for 8,000 coho which were added to the quota between Leadbetter Pt. and Cape Falcon.
4. No Area 4B add-on fishery.
5. Buoy 10 fishery opens August 1 with an expected landed catch of 45,000 marked coho in August and September.

U.S./Canada Border to Queets River

- May 15-16, May 22-23, and May 30-June 12 or a coastwide marked Chinook quota of 10,000 (C.5).

Seven days per week. All salmon except coho, two fish per day. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

Queets River to Leadbetter Point

- May 30 through earlier of June 12 or a coastwide marked Chinook quota of 10,000 (C.5).

Seven days per week. All salmon except coho, two fish per day. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

Leadbetter Point to Cape Falcon

- May 30 through earlier of June 12 or a coastwide marked Chinook quota of 10,000 (C.5).

Seven days per week. All salmon except coho, two fish per day. All Chinook must be marked with a healed adipose fin clip (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

U.S./Canada Border to Cape Alava (Neah Bay)

- June 13 through earlier of September 30 or 14,850 marked coho subarea quota with a subarea guideline of 8,400 Chinook (C.5).

Seven days per week. All salmon except no chum beginning August 1; two fish per day plus two additional pink. All coho must be marked with a healed adipose fin clip (C.1). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).

Cape Alava to Queets River (La Push Subarea)

- June 13 through earlier of September 30 or 3,610 marked coho subarea quota with a subarea guideline of 2,600 Chinook (C.5).
- October 1 through earlier of October 11 or 100 marked coho quota or 100 Chinook quota (C.5) in the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat.

Seven days per week. All salmon, two fish per day plus two additional pink. All coho must be marked with a healed adipose fin clip (C.1). See gear restrictions and definitions (C.2, C.3). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).

Queets River to Leadbetter Point (Westport Subarea)

- June 13 through earlier of September 30 or 52,840 marked coho subarea quota with a subarea guideline of 27,900 Chinook (C.5).

Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked with a healed adipose fin clip (C.1). See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 11 (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).

Leadbetter Point to Cape Falcon (Columbia River Subarea)

- June 13 through earlier of September 30 or 79,400 marked coho subarea quota with a subarea guideline of 15,000 Chinook (C.5).

Seven days per week. All salmon; two fish per day, no more than one of which can be a Chinook. All coho must be marked with a healed adipose fin clip (C.1). See gear restrictions and definitions (C.2, C.3). 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).

TABLE 2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2015.
(Page 2 of 4)

A. SEASON ALTERNATIVE DESCRIPTIONS

South of Cape Falcon

Supplemental Management Information

1. Sacramento River fall Chinook spawning escapement of 341,017 adults.
2. Sacramento Index exploitation rate of 47.7%
3. Klamath River recreational fishery allocation: 14,133 adult Klamath River fall Chinook.
4. Klamath tribal allocation: 43,581 adult Klamath River fall Chinook.
5. Overall recreational coho TAC: 55,000 coho marked with a healed adipose fin clip (marked), and 12,500 coho in the non-mark-selective coho fishery.

Cape Falcon to Humbug Mountain

- March 15 through October 31 (C.6), except as provided below during the all-salmon mark-selective and September non-mark-selective coho fisheries.

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).

- Non-mark-selective coho fishery: September 4 through the earlier of September 30 or a landed catch of 12,500 coho (C.5).

Seven days per week. All salmon, two fish per day (C.5).
The all salmon except coho season reopens the earlier of October 1 or attainment of the coho quota (C.5).

In 2016, the season between Cape Falcon and Humbug Mountain will open March 15 for all salmon except coho, two fish per day (B, C.1, C.2, C.3).

Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).

Cape Falcon to OR/CA Border

- All-salmon mark-selective coho fishery: June 27 through earlier of August 9 or a landed catch of 55,000 marked coho.

Seven days per week. All salmon, two fish per day. All retained coho must be marked with a healed adipose fin clip (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Any remainder of the mark selective coho quota will be transferred on an impact neutral basis to the September non-selective coho quota from Cape Falcon to Humbug Mountain (C.5). The all salmon except coho season reopens the earlier of August 10 or attainment of the coho quota.

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).

Humbug Mountain to OR/CA Border (Oregon KMZ)

- May 1 through September 7 (C.6).

Seven days per week. All salmon except coho, except as noted above in the all-salmon mark-selective coho fishery; 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).

OR/CA Border to Horse Mountain (California KMZ)

- May 1 through September 7 (C.6).

Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Eel, and Klamath rivers.

Horse Mountain to Point Arena (Fort Bragg)

- April 4 through November 8 (C.6).

Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3).

In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).

Point Arena to Pigeon Point (San Francisco)

- April 4 through October 31 (C.6).

Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through April 30, 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3).

In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).

TABLE 2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2015.
(Page 3 of 4)

A. SEASON ALTERNATIVE DESCRIPTIONS

Pigeon Point to Point Sur (Monterey North)

- April 4 through September 7 (C.6).

Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through May 31, 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3).

In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).

Point Sur to U.S./Mexico Border (Monterey South)

- April 4 through July 19 (C.6).

Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through May 31, 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3).

In 2016, season opens April 2 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2015 (C.2, C.3).

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)

B. MINIMUM SIZE (In es) (See C.

Area (when open)		Chinook	Coho	Pink
North of Cape Falcon		24.0	16.0	None
Cape Falcon to Humbug Mt.		24.0	16.0	None
Humbug Mt. to OR/CA Border		24.0	16.0	None
OR/CA Border to Horse Mt.		20.0	-	20.0
Horse Mt to Pt. Arena		20.0	-	20.0
Pt. Arena to Pigeon Pt.	Through April 30	24.0	-	24.0
	After April 30	20.0	-	20.0
Pigeon Pt. to U.S./Mexico Border	Through May 31	24.0	-	24.0
	After May 31	20.0	-	20.0

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. [Note: ODFW regulations in the state-water fishery off Tillamook Bay may allow the use of barbed hooks to be consistent with inside regulations.]

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.

TABLE 2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2015.
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C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.3. Gear Definitions:

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

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

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

C.4. Control Zone Definitions:

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

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

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

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

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

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

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

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

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

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

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

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

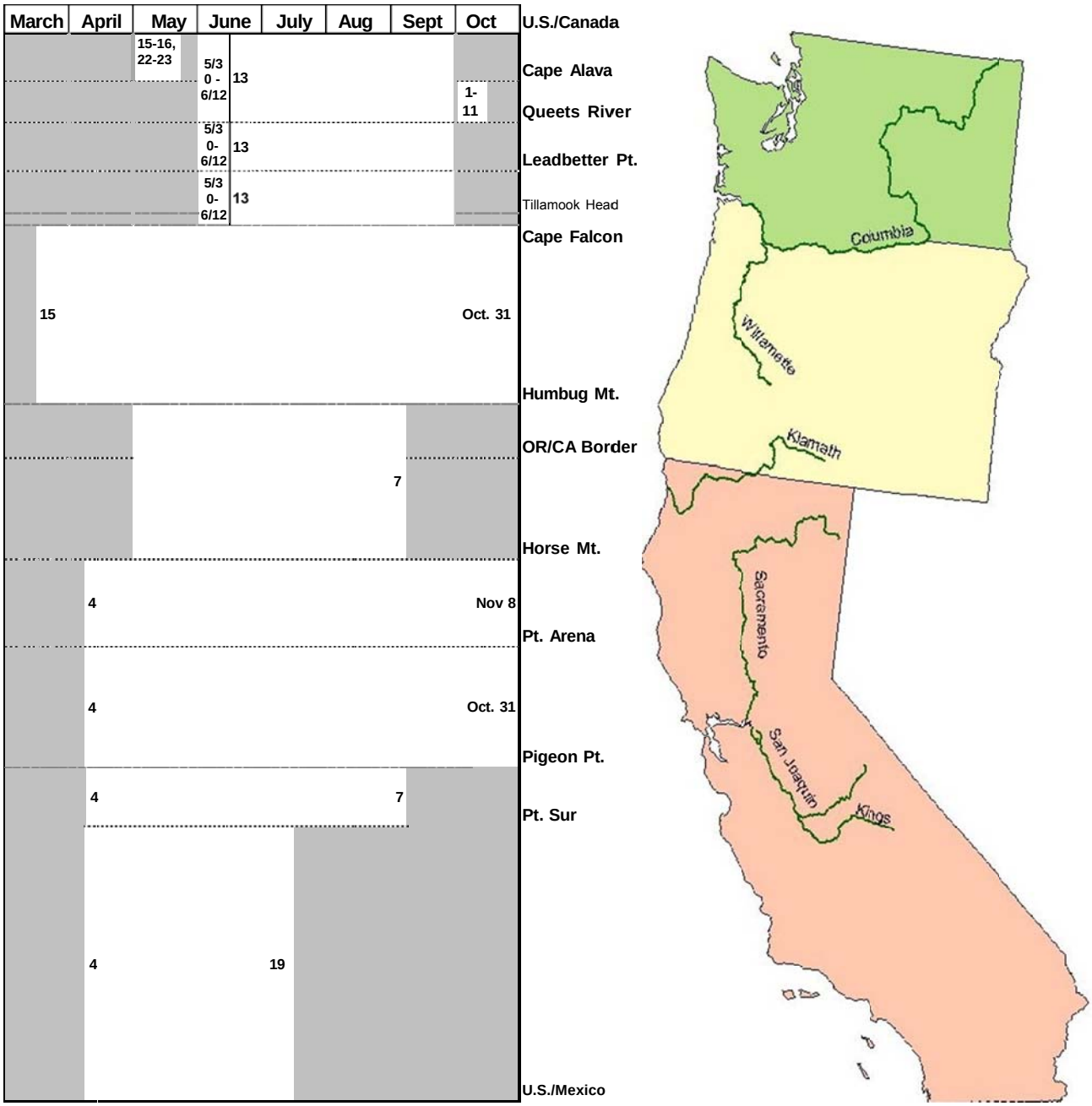

FIGURE 2. Council-adopted recreational salmon seasons for 2015. Dates are the first or last days of the month unless otherwise specified.

TABLE 3. Treaty Indian ocean troll management measures adopted by the Council for ocean salmon fisheries, 2015.
(Page 1 of 1)

A. SEASON DESCRIPTIONS

Supplemental Management Information

1. Overall Treaty-Indian TAC: 60,000 Chinook and 42,500 coho.

- May 1 through the earlier of June 30 or 30,000 Chinook quota.

All salmon except coho. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season (C.5). See size limit (B) and other restrictions (C).

- July 1 through the earlier of September 15, or 30,000 preseason Chinook quota (C.5), or 42,500 coho quota.

All Salmon. See size limit (B) and other restrictions (C).

B. MINIMUM SIZE (Inches)

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

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

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

S'KLALLAM - Washington State Statistical Area 4B (All).

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 - That portion of the FMA between 48°07'36" N. lat. (Sand Pt.) and 47°31'42" N. lat. (Queets River) and east of 125°44'00" W. long.

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

QUINAULT - That portion of the FMA between 47°40'06" N. lat. (Destruction Island) and 46°53'18"N. lat. (Point Chehalis) and east of 125°44'00" W. long.

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 will continue a ceremonial and subsistence fishery during the time frame of September 15 through October 15 in the same manner as in 2004-2014. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2015 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.

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TABLE 4. Chinook and coho harvest quotas and guidelines (*) for 2015 ocean salmon fishery management measures adopted by the Council.

Fishery or Quota Designation	Chinook	Coho
NORTH OF CAPE FALCON		
TREATY INDIAN OCEAN TROLL[a/]		
U.S./Canada Border to Cape Falcon (All Except Coho)	30,000	-
U.S./Canada Border to Cape Falcon (All Species)	30,000	42,500
Subtotal Treaty Indian Ocean Troll	60,000	42,500
NON-INDIAN COMMERCIAL TROLL[b/]		
U.S./Canada Border to Cape Falcon (All Except Coho)	40,200	-
U.S./Canada Border to Cape Falcon (All Species)	26,800	19,200
Subtotal Non-Indian Commercial Troll	67,000	19,200
RECREATIONAL		
U.S./Canada Border to Cape Falcon (All Except Coho)[c/]	10,000 *	-
U.S./Canada Border to Cape Alava[b/]	8,400 *	14,850
Cape Alava to Queets River[b/]	2,700 *	3,710
Queets River to Leadbetter Pt.[b/]	27,900 *	52,840
Leadbetter Pt. to Cape Falcon[b/d/]	15,000 *	79,400
Subtotal Recreational	64,000	150,800
TOTAL NORTH OF CAPE FALCON	191,000	212,500
SOUTH OF CAPE FALCON		
COMMERCIAL TROLL[a/]		
Humbug Mt. to OR/CA Border	3,300	-
OR/CA Border to Humboldt South Jetty	3,000	-
Subtotal Troll	6,300	-
RECREATIONAL		
Cape Falcon to Oregon/California Border	-	67,500 [e/]
TOTAL SOUTH OF CAPE FALCON	6,300	67,500

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/ Quotas are mark-selective for Chinook, equivalent to unmarked quota of 4,000.

d/ Does not include Buoy 10 fishery. Expected catch in August and September of 34,300 Chinook and 45,000 marked coho.

e/ The quota consists of both mark-selective and non-mark-selective quotas of 55,000 and 12,500, respectively.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2015 ocean fishery management measures adopted by the Council.[a/] (Page 1 of 4)

Key Stock/Criteria	Projected Ocean Escapement[b/] or Other Criteria (Council Area Fisheries)	Spawner Objective or Other Comparative Standard as Noted
	CHINOOK	
PUGET SOUND:		
Elwha Summer/Fall	6.0%	≤ 10.0% Southern U.S. Rebuilding Exploitation Rate (NMFS ESA consultation standard)
Dungeness Spring 6.2%	≤ 10.0%	Southern U.S. CERC (NMFS ESA consultation standard)
Mid-Hood Canal Summer/Fall	11.5%	≤ 12.0% Preterminal Southern U.S.(NMFS ESA consultation standard)
Skokomish Summer/Fall	49.8%	≤ 50.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
Nooksack Spring	7.0%	≤ 7.0% Southern U.S. CERC, not to exceed in four out of five years (NMFS ESA consultation standard)
	21.8%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason.
Skagit Summer/Fall	46.0%	≤ 50.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	61.4%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason.
Skagit Spring 33.0%	≤ 38.0%	Total Rebuilding Exploitation Rate (NMFS ESA consultation standard) 34.7% ≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason.
Stillaguamish Summer/Fall	12.0%	≤ 15.0% Southern U.S. Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	21.1%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason.
Snohomish Summer/Fall	10.8%	≤ 15.0% Southern U.S. Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	21.2%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason.
Lake Washington Summer/Fall	20.0%	≤ 20.0% Southern U.S. Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	46.5%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason.
Green River Summer/Fall	9.8%	≤ 15.0% Preterminal Southern U.S. CERC (NMFS ESA consultation standard)
	3.2	≥ 5.800 Natural spawning escapement (NMFS ESA consultation standard) 36.1% ≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason.
White River Spring 19.6%	≤ 20.0%	Total Rebuilding Exploitation Rate (NMFS ESA consultation standard) Puyallup Summer/Fall 50.0% ≤ 50.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard) Nisqually River Summer/Fall 51.9% ≤ 52.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
WASHINGTON COAST:		
Hoko Fall	3.0	0.85 FMP MSY spawning escapement objective
	81.0%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason.
Quillayute Fall	[d/]	3.0 FMP MSY spawning escapement objective
	133.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met
Hoh Fall	[d/]	1.2 FMP MSY spawning escapement objective
	122.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met
Queets Fall	[d/]	2.5 FMP MSY spawning escapement objective
	73.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met
Grays Harbor Fall	[d/]	13.5 FMP MSY spawning escapement objective
	76.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2015 ocean fishery management measures adopted by the Council.a/ (Page 2 of 4)

Key Stock/Criteria	Projected Ocean Escapement[b/] or Other Criteria (Council Area Fisheries)	Spawner Objective or Other Comparative Standard as Noted
	CHINOOK	
COLUMBIA RIVER		
Columbia Upriver Brights	516.2	74.0 Minimum ocean escapement to attain 60.0 adults over McNary Dam, with normal distribution and no mainstem harvest.
	132.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met
Deschutes Upriver Brights	55.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met
Mid-Columbia Brights	116.9	14.9 Minimum ocean escapement to attain 0.9 adults for Umatilla and 4.5 for Little White Salmon and Bonneville Hatchery egg-takes, assuming average conversion and no mainstem harvest.
Columbia Lower River Hatchery Tules[e/]	96.8	25.0 Minimum ocean escapement to attain 14.5 adults for hatchery egg-take, with average conversion and no lower river mainstem or tributary harvest.
Columbia Lower River Natural Tules (threatened)	40.0%	≤ 41.0% Total adult equivalent fishery exploitation rate (2015 NMFS ESA guidance).
Columbia Lower River Wild[c/] (threatened)	19.4	6.9 Minimum ocean escapement to attain MSY spawner goal of 5.7 for N. Lewis River fall Chinook (NMFS ESA consultation standard).
	80.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met
Spring Creek Hatchery Tules	163.9	8.2 Minimum ocean escapement to attain 7.0 adults for Spring Creek Hatchery egg-take, assuming average conversion and no mainstem harvest.
Snake River Fall (threatened) SRFI	45.9%	≤ 70.0% Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).
Columbia Upriver Summers	100.1	29.0 Minimum ocean escapement to attain 12.1 adults over Rock Island Dam.
	73.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met
OREGON COAST:		
Nehalem Fall	144.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met 120.0% ≤
Siletz Fall	60.0%	ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met 143.0% ≤ 60.0%
Siuslaw Fall	ISBM Index (PSC general obligation) not applicable for 2015 because PSC escapement goal met	

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2015 ocean fishery management measures adopted by the Council.a/ (Page 3 of 4)

Key Stock/Criteria	Projected Ocean Escapement[b/] or Other Criteria (Council Area Fisheries)	Spawner Objective or Other Comparative Standard as Noted
CHINOOK		
CALIFORNIA		
Klamath River Fall	40.7	40.7 MSY natural area adult spawners
Federally recognized tribal harvest	50.0%	50.0% Equals 43.6 (thousand) adult fish for Yurok and Hoopa Valley tribal fisheries.
Spawner Reduction Rate	58.9%	≤ 58.9% FMP.
Adult river mouth return	119.8	NA Total adults.
Age 4 ocean harvest rate	16.0%	≤ 16.0% NMFS ESA consultation standard for threatened California Coastal Chinook.
KMZ sport fishery share	10.5%	No Council guidance for 2015.
River recreational fishery share	32.4%	NA Equals 14.1 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	17.5%	≤ 19.0% Age-3 ocean impact rate in fisheries south of Pt. Arena. In addition, the following season restrictions apply: Recreational- Pt. Arena to Pigeon Pt. between the first Saturday in April and the second Sunday in November; Pigeon Pt. to the U.S./Mexico Border between the first Saturday in April and the first Sunday in October. Minimum size limit ≥ 20 inches total length. Commercial- Pt. Arena to the U.S./Mexico border between May 1 and September 30, except Pt. Reyes to Pt. San Pedro between October 1 and 15 (Monday-Friday). Minimum size limit ≥ 26 inches total length (NMFS 2015 ESA Guidance).
Sacramento River Fall	341.0	≥ 195.6 2015 preseason ACL.
Sacramento Index Exploitation Rate	47.7%	≤ 70.0% FMP.
Ocean commercial impacts	169.9	Include fall (Sept-Dec) 2014 impacts (17.9 thousand SRFC).
Ocean recreational impacts	85.6	Include fall 2014 impacts (7.8 thousand SRFC).
River recreational impacts	55.5	No guidance in 2015.
Hatchery spawner goal	Met	22.0 Aggregate number of adults to achieve egg take goals at Coleman, Feather River, and Nimbus hatcheries.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2015 ocean fishery management measures adopted by the Council.a/ (Page 4 of 4)

Key Stock/Criteria	Projected Ocean Escapement[b/] or Other Criteria (Council Area Fisheries)	Spawner Objective or Other Comparative Standard as Noted
	COHO	
Interior Fraser (Thompson River)	10.0% (4.0%)	≤ 10.0% 2015 Southern U.S. exploitation rate ceiling; PSC coho agreement.
Skagit	39.1% (4.0%)	≤ 60.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Stillaguamish	34.4% (2.7%)	≤ 50.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Snohomish	32.7% (2.7%)	≤ 60.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Hood Canal	53.8% (4.3%)	≤ 65.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Strait of Juan de Fuca	12.6% (3.4%)	≤ 20.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Quillayute Fall	9.8	6.3 FMP MSY adult spawner estimate.[d/] Value depicted is ocean escapement.
Hoh	4.3	2.0 FMP MSY adult spawner estimate.[d/] Value depicted is ocean escapement.
Queets Wild	6.2	5.8 FMP MSY adult spawner estimate.[d/] Value depicted is ocean escapement.
Grays Harbor	127.6	24.4 FMP MSY adult spawner estimate.[d/] Value depicted is ocean escapement.
Willapa Bay Natural	38.5	17.2 FMP MSY adult spawner estimate. Value depicted is ocean escapement.
Lower Columbia River Natural (threatened)	23% (13.6%)	≤ 23% Total marine and mainstem Columbia R. fishery exploitation rate (2015 NMFS ESA guidance).
Upper Columbia[e/]	63%	≥ 50% Minimum percentage of the run to Bonneville Dam.
Columbia River Hatchery Early	331.5	41.2 Minimum ocean escapement to attain hatchery egg-take goal of 21.8 early adult coho, with average conversion and no mainstem or tributary fisheries.
Columbia River Hatchery Late	155.5	8.8 Minimum ocean escapement to attain hatchery egg-take goal of 6.3 late adult coho, with average conversion and no mainstem or tributary fisheries.
Oregon Coastal Natural	14.9 (11.4%)	≤ 15.0% Marine and freshwater fishery exploitation rate (NMFS ESA consultation standard).
Southern Oregon/Northern California Coast (threatened)	6.8%	≤ 13.0% Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard).

a/ Reflects 2015 fisheries and abundance estimates.

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 OCN coho include impacts of freshwater fisheries. 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 minor contributions from East Fork Lewis River and Sandy River.

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

TABLE 6. Preliminary projections of Chinook and coho harvest impacts for 2015 ocean salmon fishery management measures adopted by the Council.

Area and Fishery	Catch Projection	Bycatch Mortality[a/] Projection	Bycatch Projection[b/]	Observed in 2014 Catch	Observed in 2014 Bycatch Mortality
OCEAN FISHERIES[c/]:			**CHINOOK (thousands of fish)**		
NORTH OF CAPE FALCON					
Treaty Indian Ocean Troll	60.0	14.2	46.8	61.5	47.8
Non-Indian Commercial Troll	67.0	36.2	132.1	54.9	25.5
Recreational	64.0	15.5	91.2	42.3	10.5
CAPE FALCON TO HUMBUG MT.					
Commercial Troll	83.5	12.3	31.6	175.6	22.6
Recreational	7.9	0.9	2.9	9.3	0.9
HUMBUG MT. TO HORSE MT.					
Commercial Troll	7.5	1.1	2.8	16.7	3.2 [d/]
Recreational	22.7	2.5	8.4	22.6	2.8 [d/]
SOUTH OF HORSE MT.					
Commercial Troll	151.3	22.2	57.3	165.9	24.4 [d/]
Recreational	82.6	8.9	26.0	58.9	6.1 [d/]
TOTAL OCEAN FISHERIES					
Commercial Troll	369.3	86.0	270.7	474.6	123.5
Recreational	177.2	27.8	128.6	133.1	20.4
INSIDE FISHERIES:					
Area 4B	-	-	-	-	-
Buoy 10	34.3	0.6	3.1	26.8	4.4 [d/]
			COHO (thousands of fish)		
NORTH OF CAPE FALCON					
Treaty Indian Ocean Troll	42.5	3.5	7.5	55.7	4.2
Non-Indian Commercial Troll	19.2	13.9	48.0	23.1	9.9
Recreational	150.8	32.5	146.7	139.8	20.4
SOUTH OF CAPE FALCON					
Commercial Troll	-	13.2	50.9	3.3	9.8
Recreational	67.5	21.9	104.9	82.8	22.4
TOTAL OCEAN FISHERIES					
Commercial Troll	61.7	30.6	106.4	82.1	23.9
Recreational	218.3	54.4	251.6	222.6	42.8
INSIDE FISHERIES:					
Area 4B	-	-	-	-	-
Buoy 10	45.0	9.5	37.6	57.7	10.3 [d/]

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

Commercial: 26%.

Recreational, north of Pt. Arena: 14%.

Recreational, south of Pt. Arena: 19% (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/ Based on reported released Chinook.

d/ Based on reported released Chinook or coho.

TABLE 7. 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 2015 ocean fisheries management measures adopted by the Council.

	Exploitation Rate (Percent)			
Fishery	LCN Coho	OCN Coho	RK Coho	LCR Tule
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	1.6%
BRITISH COLUMBIA	0.2%	0.4%	0.2%	10.5%
PUGET SOUND/STRAIT/BAY	0.2%	0.1%	0.0%	0.5%
NORTH OF CAPE FALCON				
Treaty Indian Ocean Troll	1.9%	0.4%	0.0%	5.4%
Recreational	5.8%	1.1%	0.1%	3.7%
Non-Indian Troll	1.6%	0.4%	0.0%	8.0%
SOUTH OF CAPE FALCON				
Recreational:				0.1%
Cape Falcon to Humbug Mt.	3.0%	5.9%	0.4%	
Humbug Mt. to OR/CA border (KMZ)	0.1%	0.2%	0.5%	
OR/CA border to Horse Mt. (KMZ)	0.1%	0.4%	1.7%	
Fort Bragg	0.0%	0.3%	0.9%	
South of Pt. Arena	0.0%	0.3%	0.7%	
Troll:				1.5%
Cape Falcon to Humbug Mt.	0.8%	0.9%	0.1%	
Humbug Mt. OR/CA border (KMZ)	0.0%	0.0%	0.0%	
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.1%	
Fort Bragg	0.1%	0.7%	1.7%	
South of Pt. Arena	0.0%	0.3%	0.2%	
BUOY 10	2.3%	0.1%	0.0%	8.7%
ESTUARY/FRESHWATER	7.1%	3.5%[a/]	0.2%	
TOTAL	23.0%	14.9%	6.8%	40.0%

a/ Includes adult mortalities associated with PSC funded Chinook escapement monitoring studies in Oregon.

TABLE 8. Projected coho mark rates for 2015 mark-selective fisheries under Council adopted management measures (percent marked).

Area	Fishery	June	July	August	Sept
Canada					
Johnstone Strait	Recreational	-	25%	22%	-
West Coast Vancouver Island	Recreational	42%	33%	42%	44%
North Georgia Strait	Recreational	42%	43%	42%	37%
South Georgia Strait	Recreational	33%	47%	38%	41%
Juan de Fuca Strait	Recreational	43%	45%	46%	42%
Johnstone Strait	Troll	50%	41%	23%	37%
NW Vancouver Island	Troll	43%	36%	34%	28%
SW Vancouver Island	Troll	48%	45%	45%	46%
Georgia Strait	Troll	50%	50%	52%	46%
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	54%	49%	47%	47%
Strait of Juan de Fuca (Area 6)	Recreational	51%	46%	47%	44%
San Juan Island (Area 7)	Recreational	39%	46%	43%	31%
North Puget Sound (Areas 6 & 7A)	Net	-	51%	43%	37%
Council Area					
Neah Bay (Area 4/4B)	Recreational	36%	51%	49%	54%
LaPush (Area 3)	Recreational	57%	55%	56%	39%
Westport (Area 2)	Recreational	63%	62%	59%	51%
Columbia River (Area 1)	Recreational	71%	70%	65%	67%
Tillamook	Recreational	62%	58%	53%	40%
Newport	Recreational	58%	54%	52%	39%
Coos Bay	Recreational	50%	47%	37%	23%
Brookings	Recreational	44%	33%	28%	11%
Neah Bay (Area 4/4B)	Troll	47%	48%	48%	47%
LaPush (Area 3)	Troll	51%	55%	49%	48%
Westport (Area 2)	Troll	46%	54%	57%	52%
Columbia River (Area 1)	Troll	65%	65%	62%	60%
Tillamook	Troll	59%	56%	56%	53%
Newport	Troll	56%	55%	51%	50%
Coos Bay	Troll	50%	47%	42%	29%
Brookings	Troll	39%	39%	42%	56%
Columbia River					
Buoy 10	Recreational	-	-	-	66%

TABLE 9. Preliminary projected exvessel value by catch area under Council-adopted 2015 non-Indian commercial troll management measures compared with 2014 and two five year averages (2003-2007 and 2010-2014) (inflation adjusted).
(Page 1 of 1)

	Exvessel Value (thousands of dollars)[a/]						
					Percent Change		
Management Area	2015 Projected[b/]	2014	2003-2007 Average[c/]	2010-2014 Average[c/]	From 2014 Modeled	From 2003-2007 Average	From 2010-2014 Average
North of Cape Falcon	5,251	4,077	1,774	3,261	+29%	+196%	+61%
Cape Falcon to Humbug Mt.	6,064	12,095	6,728	5,412	-50%	-10%	+12%
Humbug Mt. to Horse Mt. (KMZ)	537	1,269	718	672	-58%	-25%	-20%
Horse Mt. to Pt. Arena (Fort Bragg	3,760	5,422	3,289	4,060	-31%	+14%	-7%
South of Pt. Arena	8,882	6,956	9,679	7,102	+28%	-8%	+25%
Total South of Cape Falcon	19,242	25,741	20,414	17,245	-25%	-6%	+12%
West Coast Total	24,493	29,818	22,188	20,506	-18%	+10%	+19%

a/ Exvessel values are not comparable to the community income impacts shown in Table 10.
b/ Dollar value estimates are based on expected catches in the Council management areas, and 2014 exvessel prices and average weight per fish.
c/ All dollar amounts are inflation adjusted to 2014 values.

TABLE 10. Preliminary projected angler trips and state level personal income impacts generated under Council-adopted 2015 recreational ocean salmon fishery management measures compared to estimated 2014 and two five year averages (2003-2007 and 2010-2014) (inflation adjusted). (Page 1 of 1)

	Angler Trips (thousands)				Coastal Community Income Impacts (thousands of dollars)[a/]				Percent Change in Income Impacts		
Management Area	2015 Projected	2014	2010-2014 Avg.[b/]	2003-2007 Avg.	2015 Projected	2014	2010-2014 Avg.b/	2003-2007 Avg.	Compared to 2014	Compared to 2010-2014 Avg.[b/]	Compared to 2003-2007 Avg.
North of Cape Falcon	160.9	125.0	91.6	105.6	31,988	24,838	18,551	11,152	+29%	+72%	+187%
Cape Falcon to Humbug Mt.	62.7	92.2	53.5	75.5	6,548	9,623	5,411	5,132	-32%	+21%	+28%
Humbug Mt. to Horse Mt. (KMZ)	42.9	37.7	33.8	32.6	5,731	5,040	4,545	1,762	+14%	+26%	+225%
Horse Mt. to Pt. Arena (Fort Bragg)	20.7	17.5	14.1	23.3	4,136	3,485	2,796	1,958	+19%	+48%	+111%
South of Pt. Arena	105.8	82.2	76.9	109.1	24,268	18,841	16,936	10,536	+29%	+43%	+130%
Total South of Cape Falcon	232.1	229.5	178.3	240.6	40,682	36,989	29,687	19,388	+10%	+37%	+110%
West Coast Total	393.1	354.5	269.8	346.2	72,670	61,827	48,237	30,540	+18%	+51%	+138%

a/ Income impacts are sums of the impacts for individual communities within each management area. Income impacts are not comparable to exvessel values shown in Table 9. All dollar amounts are inflation adjusted to 2014 values.

b/ The 2010-2014 average includes one year of historically low effort in the KMZ (Humbug Mt. to Horse Mt., 2010).

TABLE 11. Environmental effects of the Proposed Action relative to criteria and Alternatives analyzed in Preseason Reports I and II. Bold entries represent estimates that were not in compliance at the time the Alternative was adopted.[a/]

Environmental Component	No-Action Alternative[b/]	Alternative I	Alternative II	Alternative III	Proposed Action	2015 Criteria or Comparison
Target Stocks						
SRFC						
Spawning Escapement	337,602	342,820	335,846	327,827	341,017	≥ 195.6 2015 preseason ACL.
Exploitation Rate	48.2%	47.4%	48.5%	49.7%	47.7%	≤ 70.0% FMP
KRFC						
Spawning Escapement	57,792	40,700	40,700	40,700	40,700	≥40,700 MSY natural area spawners.
Exploitation Rate	41.7%	58.9%	58.9%	58.9%	58.9%	≤ 58.9% FMP
Strait of Juan de Fuca Coho	12.0%	12.3%	11.9%	11.1%	12.6%	≤ 20.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Skagit Coho	35.0%	38.4%	37.9%	37.3%	39.1%	≤ 60.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Stillaguamish Coho	33.0%	32.3%	32.4%	31.9%	34.4%	≤ 50.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Snohomish Coho	31.0%	31.5%	31.1%	30.6%	32.7%	≤ 60.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Hood Canal Coho	54.0%	53.9%	53.5%	53.0%	53.8%	≤ 65.0% 2015 total exploitation rate ceiling; FMP matrix[d/e/]
Canadian Stocks						
Interior Fraser Coho	**10.4%**	9.5%	8.3%	7.9%	10.0%	≤ 10.0% Southen U.S. exploitation rate limit under the PST
ESA-Listed Salmon						
SRWC	15.2%	17.9%	18.0%	14.8%	17.5%	≤ 19.0% SRWC age-3 ocean impact rate in fisheries south of Pt. Arena.
California Coastal Chinook	13.5%	16.0%	16.0%	16.0%	16.0%	≤ 16.0% KRFC age-4 ocean harvset rate.
LCR Natural Tule Chinook	NA	**41.5%**	39.9%	38.2%	40.0%	≤ 41.0% Total adult equivalent fishery exploitation rate.
LCN Coho[f/]	**25.6%**	14.4%	13.4%	10.5%	13.6%	≤ 23.0% Total marine and mainstem Columbia fishery exploitation rate.
OCN coho[f/]	**26.3%**	13.4%	11.1%	8.3%	11.4%	≤ 15.0% Marine and freshwater fishery exploitation rate.
SONCC (RK) coho	7.1%	6.7%	6.3%	6.0%	6.8%	≤ 13.0% Marine fishery exploitation rate.
Socioeconomics						
Commercial Community Personal Income Impacts (thousands of dollars)						
North of Cape Falcon	6,589	8,747	7,860	7,035	8,716	
Cape Falcon to Humbug Mt.	20,716	9,423	8,968	8,799	9,034	
KMZ	4,464	4,451	3,423	2,907	3,433	
Fort Bragg	9,472	6,773	7,226	7,263	7,122	
South of Pt. Arena	11,652	14,412	15,936	16,322	14,821	
West Coast Total	52,894	43,805	43,412	42,326	43,126	
Recreational Community Personal Income Impacts (thousands of dollars)						
North of Cape Falcon	24,838	33,547	28,889	25,733	31,988	
Cape Falcon to Humbug Mt.	9,623	6,548	6,036	5,790	6,548	
KMZ	5,040	5,731	5,505	5,138	5,731	
Fort Bragg	3,485	4,136	4,136	3,977	4,136	
South of Pt. Arena	18,841	24,551	24,551	22,505	24,268	
West Coast Total	61,827	74,512	69,116	63,143	72,670	

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

b/ Socioeconomic impacts under the No-Action Alternative are assumed equal to 2014 estimates.

c/ Annual management objectives may be different than FMP goals, and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders. Total exploitation rate includes Alaskan, Canadian, Council area, Puget Sound, and freshwater fisheries and is calculated as total fishing mortality divided by total fishing mortality plus spawning escapement.

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.

e/ Includes projected impacts of inriver fisheries.

f/ Impact rates listed under Alternatives I-III and the Proposed Action for LCN coho and OCN coho represent marine impacts. It is anticipated that when combined with freshwater impacts, the exploitation rates will meet, but not exceed, NMFS guidance. Total exploitation rates are shown for the No-Action Alternative, including freshwater impacts.

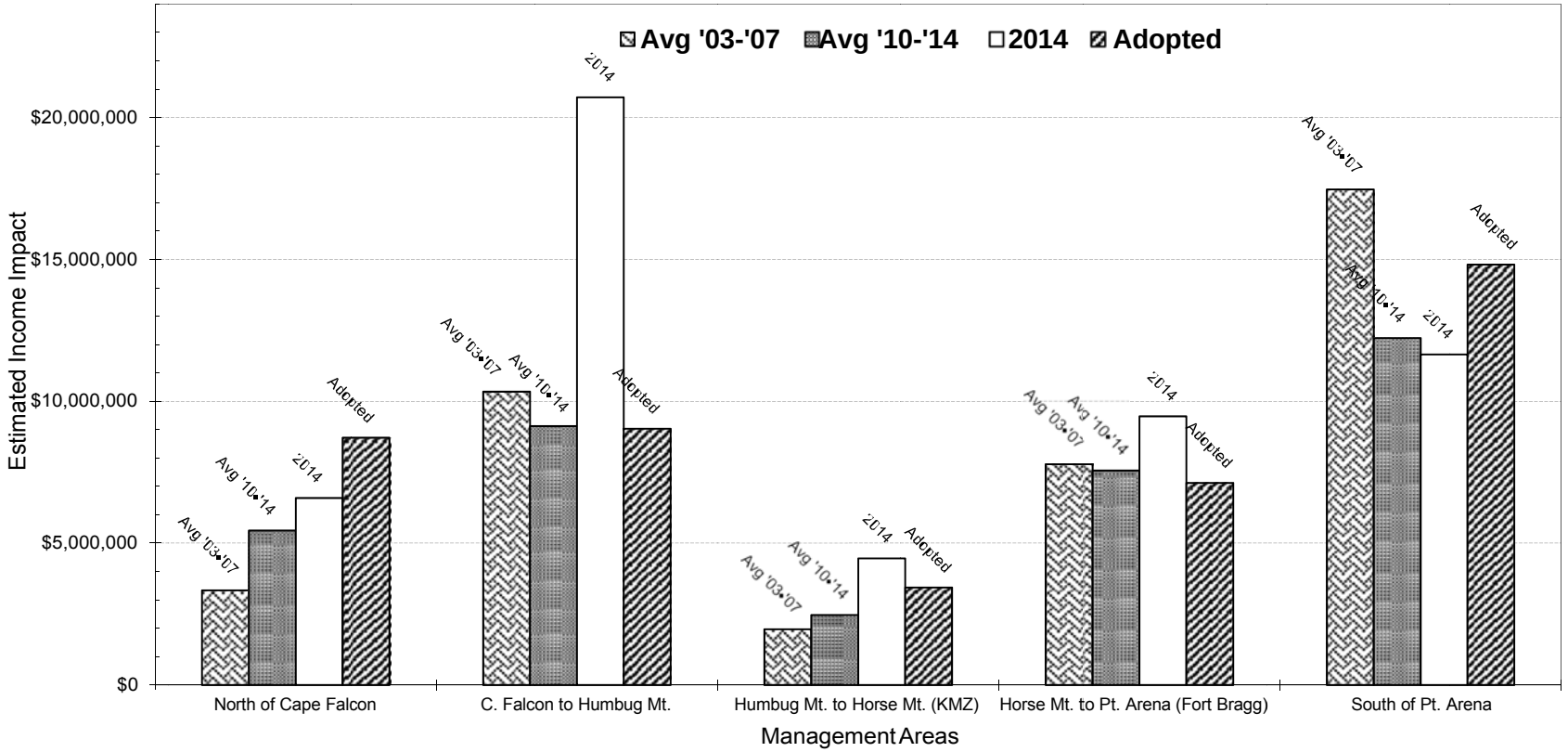


FIGURE 3. Projected coastal community personal income impacts associated with the 2015 commercial troll fishery under Council-adopted management measures compared to estimated 2014 and the 2003-2007 and 2010-2014 averages in inflation-adjusted dollars.

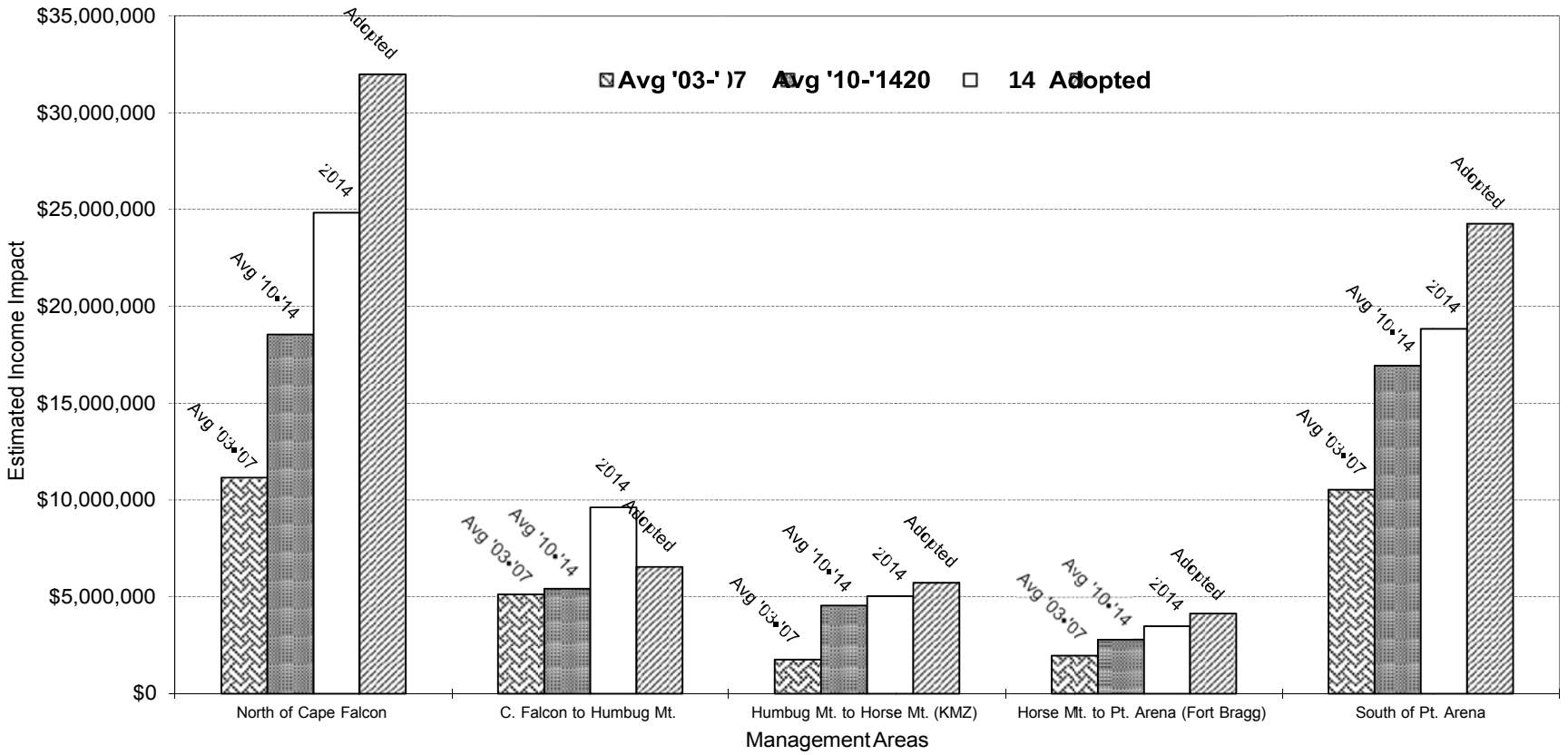
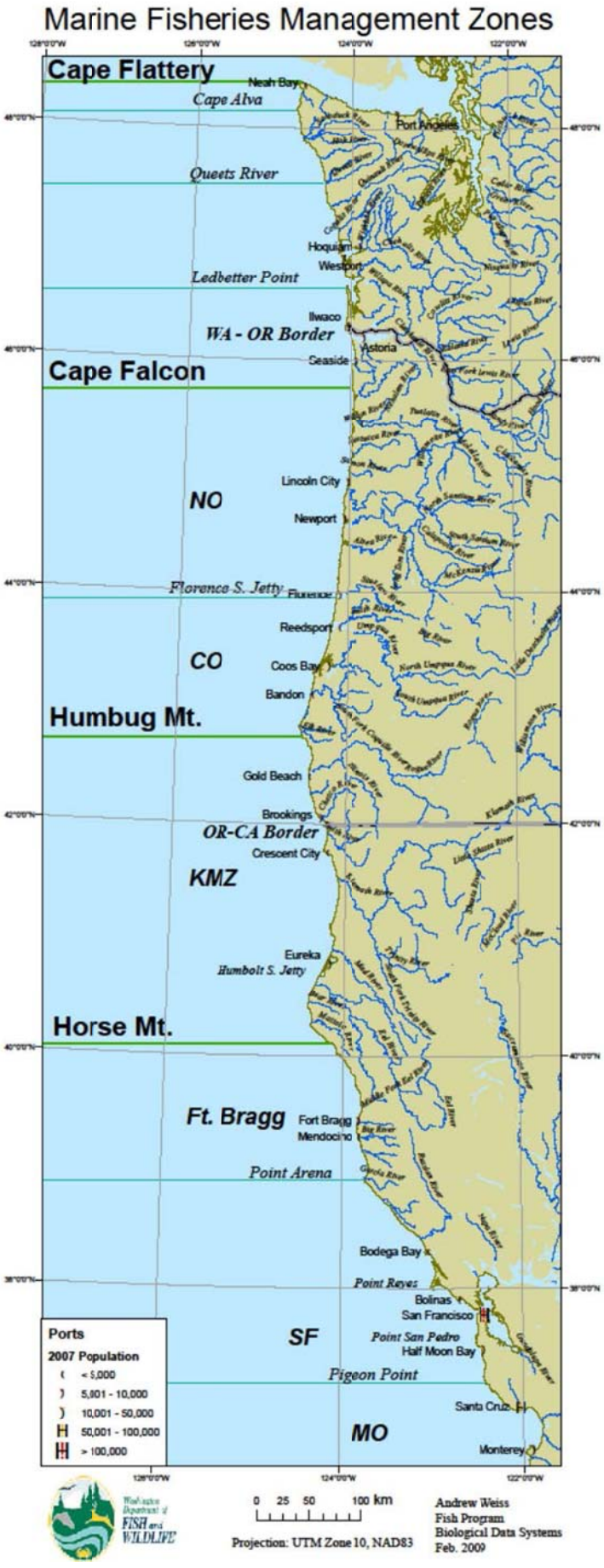


FIGURE 4. Projected coastal community personal income impacts associated with the 2015 recreational fishery under Council-adopted management measures compared to estimated 2014 and the 2003-2007 and 2010-2014 averages in inflation-adjusted dollars.


Marine Fisheries Management Zones
Cape Flattery
Neah Bay
Cape Alva
Port Angeles
Queets River
Hoquiam
Westport
Ledbetter Point
Ilwaco
WA - OR Border
Astoria
Seaside
Cape Falcon
Lincoln City
NO
Newport
Florence S. Jetty
Florence
Reedsport
CO
Coos Bay
Bandon
Humbug Mt.
Gold Beach
Brookings
OR-CA Border
Crescent City
KMZ
Eureka
Humboldt S. Jetty
Horse Mt.
Ft. Bragg
Fort Bragg
Mendocino
Point Arena
Bodega Bay
Point Reyes
Bolinas
San Francisco
Point San Pedro
Half Moon Bay
SF
Pigeon Point
Santa Cruz
MO
Monterey
Ports
2007 Population
< 5,000
5,001 - 10,000
10,001 - 50,000
50,001 - 100,000
> 100,000
0 25 50 100 km
Projection: UTM Zone 10, NAD83
Andrew Weiss
Fish Program
Biological Data Systems
Feb. 2009

ADDENDUM: CONSISTENCY WITH OTHER APPLICABLE LAW

Magnuson-Stevens Conservation and Management Act (MSA)

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

The purpose of this action is to develop annual management measures for Pacific salmon under the salmon FMP. National Standard 1 (NS1) requires that "Conservation and management measures shall prevent overfishing while achieving on a continuing basis, the optimum yield from each fishery for the United States fishing industry." The alternatives for the management measures are designed to ensure that conservation objectives and ACLs are met. These reference points are in turn designed to prevent overfishing while achieving optimum yield on a continuing basis. Therefore, the alternatives are consistent with NS1.

National Standard 2 requires the use of the best available scientific information. The Council's Scientific and Statistical Committee (SSC) reviews and recommends the methods used to develop alternatives for salmon management measures. The No-action Alternative (see PRE I, Chapter V) would not meet this standard, as it does not take into account current abundance projections for salmon stocks. However, the other alternatives are crafted based on up to date scientific information regarding abundance and the methods approved by the SSC.

National Standard 3 requires individual stocks of fish to be managed as a unit throughout their ranges and interrelated stocks of fish to be managed as a unit. The conservation objectives and ACLs are established for individual stocks in the Salmon FMP and are based on either escapement or on total exploitation rate, both of which account for impacts to stocks throughout their range. All salmon stocks are managed as a unit in Council-area fisheries to ensure all conservation objectives are met. The alternatives were developed to be consistent with the conservation objectives and ACLs in the FMP.

National Standard 4 requires that "Conservation and management measures shall not discriminate between residents of different States." And that "allocation shall be: (A) fair and equitable…; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no…entity acquires an excessive share." The alternatives were developed to be consistent with the allocation guidelines in the FMP.

National Standard 5 requires efficiency, where practicable, in the utilization of fishery resources. All alternatives in this EA meet this standard.

National Standard 6 requires conservation objectives and management measures to take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches. All alternatives allow for inseason management of Council-area salmon fisheries to meet conservation objectives and preseason management objectives.

National Standard 7 requires that conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication. All alternatives in this EA meet this standard.

National Standard 8 requires that conservation and management measures shall, consistent with the conservation requirements of the MSA, take into account the importance of fishery resources to fishing communities in order to "(A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities." The alternatives represent a range of management measures with various economic impacts. The Final Preferred Alternative (see PRE III) was developed to provide the optimum balance between the short term needs of the communities and the long term needs of the communities, needs which rely on long term health of the salmon stocks.

National Standard 9 requires the reduction, to the extent practicable, of bycatch or bycatch mortality. All alternatives in this EA are expected to have no significant effects due to bycatch mortality on non-target species.

National Standard 10 requires, to the extent practicable, conservation and management measures to promote the safety of human life at sea. The Alternatives in this EA are not expected to impact risks to salmon fishermen.

Paperwork Reduction Act (PRA)

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

The proposed action includes an existing approved collection-of-information requirement which is being implemented under Federal regulations. A specific requirement on when and where to land fish is imposed when necessary to ensure timely and accurate assessment of catches in specific regulatory areas. If fishermen are unable to comply with this landing requirement because of unsafe weather or mechanical problems, they must notify the Coast Guard of their problem, and advise of the name of the vessel, the port where delivery will be made, the approximate amount of salmon on board, and the estimated time of arrival. This emergency provision is rarely used, but is important to be retained for safety purposes. Authorization under the PRA for this information collection was extended on July 31, 2014 and will expire on July 31, 2017 (OMB Control No. 0648-0433).

Marine Mammal Protection Act (MMPA)

The MMPA of 1972 is the principle Federal legislation that guides marine mammal species protection and conservation policy in the United States. Under the MMPA, NMFS is responsible for the management and conservation of 153 stocks of whales, dolphins, porpoise, as well as seals, sea lions, and

fur seals; while the US Fish and Wildlife Service is responsible for walrus, sea otters, and the West Indian manatee.

Off the west coast, the Southern Resident Puget Sound killer whale stock (SRKW) is listed as endangered under the Endangered Species Act (ESA); Guadalupe fur seal, and Southern sea otter California stock are listed as threatened under the ESA. The sperm whale (WA, OR, CA stock), humpback whale (WA, OR, CA, Mexico stock), blue whale eastern north Pacific stock, and Fin whale (WA, OR, CA stock) are listed as depleted under the MMPA. Any species listed as endangered or threatened under the ESA is automatically considered depleted under the MMPA.

The commercial salmon troll fisheries off the west coast are classified as Category III fisheries, indicating a remote or no likelihood of causing incidental mortality or serious injury to marine mammals (79 FR 77919, December 29, 2014). Recreational salmon fisheries are assumed to have similar impacts as they use similar gear and techniques. The proposed action is not expected to have impacts to marine mammals.

National Environmental Policy Act (NEPA)

This EA is intended to meet the NEPA requirements that apply to the proposed action.

Endangered Species Act (ESA)

Ocean salmon fisheries conducted under the FMP do affect ESA-listed salmon species. The alternatives analyzed in this EA were developed under the guidance of biological opinions issued by NMFS. The proposed action is consistent with consultation standards established by NMFS.

Council-managed fisheries also impact listed Southern Resident Killer Whales. Fisheries are managed consistent with the biological opinion for killer whales (NMFS, May 5, 2009). Effects on listed Puget Sound yelloweye rockfish, canary rockfish, and bocaccio and Pacific eulachon were addressed in a 2010 biological opinion (NMFS 2010b). The effects to ESA-listed North American green sturgeon were considered in a 2007 biological opinion (NMFS 2007b).

The following BOs and Section 4(d) determinations have been prepared for West Coast stocks by NMFS.

Table 1. NMFS ESA Biological Opinions regarding Evolutionarily Significant Units (ESUs) and Distict Population Segments (DPSs) affected by PFMC Fisheries.

Date (decision type)	Duration	Species Considered
Salmonid Species		
March 8, 1996 (BO)	until reinitiated	Snake River spring/summer and fall Chinook Snake River sockeye
April 28, 1999 (BO)	until reinitiated	S. Oregon/N. California Coastal coho Central California Coast coho Oregon Coast natural coho
April 28, 2000 (BO)	until reinitiated	Central Valley Spring-run Chinook California Coastal Chinook
April 27, 2001 (BO, 4(d) Limit)	until withdrawn	Hood Canal summer-run chum
April 30, 2001 (BO)	until reinitiated	Upper Willamette River Chinook Columbia River chum Ozette Lake sockeye Upper Columbia River spring-run Chinook Ten listed steelhead DPSs
June 13, 2005 (BO)	until reinitiated	California Coastal Chinook
April 4, 2015 (BO)	until reinitiated	Lower Columbia River coho
April 30, 2010 (BO)	until reinitiated	Sacramento River winter-run Chinook
May 24, 2011 (BO)	until April 2014	Puget Sound Chinook Puget Sound steelhead
April 26, 2012	until reinitiated	Lower Columbia River Chinook
Non-Salmonid Species		
April 30, 2007 (BO)	until reinitiated	North American Green Sturgeon
December 22, 2008 (BO)	until December 2018	Eastern and Western DPS Steller Sea Lion (only the eastern DPS was ESA-listed and was delisted November 4, 2013 (78 FR 66140))
May 5, 2009 (BO)	until reinitiated	Southern Resident Killer Whales
April 30, 2011 (BO)	until reinitiated	Puget Sound/Georgia Basin Rockfish
April 30, 2011 (BO)	until reinitiated	Pacific Eulachon

Many of these documents are available from the NMFS Northwest Region website at:
http://www.nwr.noaa.gov/Salmon-Habitat/ESA-Consultations/Biological-Opinions.cfm

Coastal Zone Management Act (CZMA)

Section 307(c)(1) of the CZMA of 1972 requires all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. These management measures are based primarily on the Salmon FMP and its amendments, which were previously found to be consistent to the maximum extent practicable with the approved coastal zone management programs of the affected States.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 was designed to end the commercial trade of migratory birds and their feathers that, by the early years of the 20th century, had diminished populations of many native bird species. The act states it is unlawful to take, kill, or possess migratory birds and their parts (including

eggs, nests, and feathers) and is a shared agreement between the United States, Canada, Japan, Mexico, and Russia to protect a common migratory bird resource. The Migratory Bird Treaty Act prohibits the directed take of seabirds, but the incidental take of seabirds does occur. None of the alternatives directly affect any seabirds protected by the Migratory Bird Treaty Act.

Executive Order 13175: Consultation and Coordination with Indian Tribal Governments (EO 13175)

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

The Secretary recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. At Section 302(b)(5), the MSA reserves a seat on the Council for a representative of an Indian tribe with Federally-recognized fishing rights from California, Oregon, Washington, or Idaho.

The U.S. government formally recognizes that the four Washington Coastal Tribes (Makah, Quileute, Hoh, and Quinault) have treaty rights to fish for salmon within the Council-managed area. Each of the treaty tribes has the discretion to administer their fisheries and to establish their own policies to achieve program objectives. In addition, other tribes with Federally-recognized fishing rights may be impacted by Council-area fisheries, including tribes from Puget Sound, the Columbia River, and the Klamath River. Accordingly, the proposed action and other alternatives have been developed through the Council process. Through the tribal representative on the Council, the Tribes have had a role in the developing the proposed action and analyzing the effects of the alternatives; therefore, the proposed action is consistent with EO 13175.

Executive Order 12898: Environmental Justice

Executive Order 12898 obligates Federal agencies to identify and address "disproportionately high adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations in the United States" as part of any overall environmental analysis associated with an action. NOAA guidance, NAO 216-6, at 7.02, states that "consideration of Executive Order 12898 should be specifically included in the NEPA documentation for decision making purposes." Agencies should also encourage public participation "especially by affected communities" as part of a broader strategy to address environmental justice issues.

The environmental justice analysis must first identify minority and low-income groups that live in the project area and may be affected by the action. Typically, census data are used to document the occurrence and distribution of these groups. Agencies should be cognizant of distinct cultural, social, economic or occupational factor that could amplify the adverse effects of the proposed action. (For example, if a particular kind of fish is an important dietary component, fishery management actions affecting the availability or price of that fish could have a disproportionate effect.) In the case of Indian tribes, pertinent treaty or other special rights should be considered. Once communities have been identified and characterized, and potential adverse impacts of the alternatives are identified, the analysis must determine whether these impacts are disproportionate. Because of the context in which environmental justice developed, health effects are usually considered and three factors may be used in an

evaluation: whether the effects are deemed significant, as the term is employed by NEPA; whether the rate or risk of exposure to the effect appreciably exceeds the rate for the general population or some other comparison group; and whether the group in question may be affected by cumulative or multiple sources of exposure. If disproportionately high adverse effects are identified, mitigation measures should be proposed. Community input into appropriate mitigation is encouraged.

Fisheries conducted under the FMP are not expected to disproportionally affect minority and low-income communities. West Coast Indian tribes are part of the Council's decision-making process on salmon management issues, and tribes with treaty rights to salmon, groundfish, or halibut have a seat on the Council. Available demographic data detailed in the Salmon FMP Amendment 14, Appendix B show that coastal counties where fishing communities are located are variable in terms of social indicators like income, employment, and race and ethnic composition. As a result, the alternatives are not expected to have notable effects on fishing communities in general, nor on minority and low income groups in particular.

Executive Order 13132: Federalism

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

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

The proposed action would not have federalism implications subject to Executive Order 13132.

REGULATORY FLEXIBILITY ACT (RFA)

This final rule is exempt from the procedures of the RFA because NMFS is waiving notice and comment for the reasons described below under the Administrative Procedures Act determination section.

ADMINISTRATIVE PROCEDURE ACT (APA)

NOAA's Assistant Administrator for Fisheries (AA) finds it is impracticable and contrary to public interest to provide for prior notice and comment and waives this requirement under 5 U.S.C. 553(b)(B) for the reasons explained below.

The annual salmon management cycle begins May 1 and continues through April 30 of the following year. May 1 was chosen because the pre-May harvests constitute a relatively small portion of the annual catch. The time frame of the preseason process for determining the annual modifications to ocean salmon

fishery management measures depends on when the pertinent biological data are available. Salmon stocks are managed to meet annual spawning escapement goals or specific exploitation rates. Achieving either of these objectives requires designing management measures that are appropriate for the ocean abundance predicted for that year. These preseason abundance forecasts, which are derived from the previous year's observed spawning escapement, vary substantially from year to year, and are not available until January and February because spawning escapement continues through fall.

The preseason planning and public review process associated with developing Pacific Fishery Management Council (Council) recommendations is initiated in February as soon as the forecast information becomes available. The public planning process requires coordination of management actions of four states, numerous Indian tribes, and the Federal Government, all of which have management authority over the stocks. This complex process includes the affected user groups, as well as the general public. The process is compressed into a two-month period which culminates at the April Council meeting at which the Council adopts a recommendation that is forwarded to NMFS for review, approval, and implementation of fishing regulations effective on May 1.

As described in the Federal Register Notice for this action under the "Schedule Used to Establish 2015 Management Measures" section, the Council solicited public comment on its proposed management options and notified the public of the measures it recommended to NMFS for implementation. In addition to opportunities for public input at the March and April Council meetings, the Council held public hearings on the alternatives in each coastal state between the March and April Council meetings. In addition to the Council process, notice and opportunity for public comment is provided through meetings and caucuses of State, Tribal, local governments, and the various user groups. This parallel process occurs throughout the February to April time frame when Council recommendations are developed. The major meetings that concern salmon fisheries on the West Coast include the North of Cape Falcon Forum, sponsored by the state of Washington and northwest Indian tribes with treaty fishing rights; U.S. v. Oregon meetings related to ocean and Columbia River fisheries; and meetings held by the Oregon Fish and Wildlife Commission and the California Fish and Game Commission. Recommendations and information from these forums are incorporated into the Council process when representatives from these entities provide comments and information at Council sponsored functions.

Providing opportunity for prior notice and public comments on the Council's recommended measures through a proposed and final rulemaking process would require 30 to 60 days in addition to the two-month period required for development of the regulations. Delaying implementation of annual fishing regulations, which are based on the current stock abundance projections, for an additional 60 days, would require that fishing regulations for May and June be set in the previous year, without knowledge of current stock status. Although this is currently done for fisheries opening prior to May, relatively little harvest occurs during that period (e.g., less than 5 percent of commercial and recreational harvest occurred prior to May 1 in the last decade, 2005 through 2014). Allowing the much more substantial harvest levels normally associated with the May and June seasons to be regulated in a similar way would impair NMFS's ability to protect weak stocks and ESA-listed stocks, and provide harvest opportunity where appropriate. The choice of May 1 as the beginning of the regulatory season balances the need to gather and analyze the data needed to meet the management objectives of the Salmon FMP and the requirements to provide adequate public notice and comment on the regulations implemented by NMFS. Providing for notice and public comment on the Council's recommendations, in addition to that provided for through the Council process, is therefore impracticable and contrary to the public interest.

If these measures are not in place on May 1, then the previous year's management measures will continue to apply in most areas. This would result in exceeding the ESA consultation standards for Oregon Coast and Lower Columbia River natural coho, and forgoing harvest opportunities for Chinook salmon south of Cape Falcon.

Overall, the annual population dynamics of the various salmon stocks require managers to vary the season structure of the various West Coast area fisheries to both protect weaker stocks and give fishers access to stronger salmon stocks, particularly hatchery produced fish. Failure to implement these measures immediately could compromise the status of certain stocks and negatively impact international, state, and tribal salmon fisheries, thereby undermining the purposes of this Agency action. Based upon the above-described need to have these measures effective on May 1 and the fact that there is limited time available to implement these new measures after the final Council meeting in April and before the commencement of the ocean salmon fishing year on May 1, NMFS has concluded it is impracticable to provide an opportunity for prior notice and public comment under 5 U.S.C. 553(b)(B).

The AA also finds that good cause exists under 5 U.S.C. 553(d)(3), to waive the 30-day delay in effectiveness of this rule. As previously discussed, these measures are essential to conserve threatened and endangered salmon stocks, and to provide for harvest of more abundant stocks. If these measures are not in place on May 1, then the previous year's management measures will continue to apply.

To enhance notification to the fishing industry of these new measures, NMFS is announcing the new measures over the telephone hotline used for inseason management actions and also posting the regulations on its West Coast Region website (http://www.westcoast.fisheries.noaa.gov). Additionally, NMFS is advising the states of Washington, Oregon, and California on the new management measures. These states announce the seasons for applicable state and Federal fisheries through their own public notification systems.

FINDING OF NO SIGNIFICANT IMPACT FOR
2015 OCEAN SALMON FISHERIES MANAGEMENT MEASURES
(XRIN 0648-XD843)

National Marine Fisheries Service

National Oceanic and Atmospheric Administration Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. For the 2015 salmon management measures, three alternatives were developed and analyzed (see Environmental Assessment (EA) Part 2, "Preseason Report II"), in addition to the No-Action Alternative (see EA Part 1, "Preseason Report I"). The final action is described and analyzed in EA Part 3, "Preseason Report III", and was developed with consideration to updated information with respect to conservation measures in response to California drought conditions and unanticipated changes in northern fisheries that affect available quotas in Pacific Fishery Management Council (PFMC) -area fisheries.

In addition to the criteria for determining significance described above, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

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

Response: No, the proposed action will not jeopardize the sustainability of target species, due to preseason planning analyses by the PFMC's Salmon Technical Team (STT) and Scientific and Statistical Committee (SSC) to structure fisheries that are consistent with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), conservation objectives, annual catch limits, accountability measures, control rules, and status determination criteria in the Pacific Coast Salmon Fishery Management Plan (FMP). The FMP conservation objectives are based on the best available

science and are intended to prevent overfishing while achieving optimum yield from West Coast salmon fisheries as required by the MSA.

2) **Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?**

Response: This proposed action will not jeopardize the sustainability of non-target species. For salmon species listed under the Endangered Species Act (ESA), NMFS has issued biological opinions addressing the effects of the fishery on all of these species. For non-salmon species, regulations are in place under the Pacific Coast Groundfish FMP and the Halibut Act and Area 2A Catch Sharing Plan to limit incidental catch of halibut and groundfish to ensure that impacts to these species are sustainable. These regulations include landing/possession limits, quotas, size limits, gear restrictions, and time/area closures. Encounters of non-target salmonid species (e.g., chum and sockeye salmon, and steelhead) in the ocean salmon fisheries are generally minimal, because the behavior of those species does not make them susceptible to the operations of the ocean salmon fisheries (e.g., location of fisheries and type of tackle and bait used).

3) **Can the proposed action reasonably be expected to cause substantial damage to ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in Fisheries Management Plans?**

Response: The proposed action will not cause substantial damage to the ocean or coastal habitats or essential fish habitat based on previous analysis (e.g., Appendix A of FMP Amendment 14). PFMC-area ocean salmon fisheries are hook-and-line fisheries. Hook-and-line gear does not adversely affect the ocean floor and thus, does not damage ocean or coastal habitats. Nets and bottom contact gear are not permitted in the salmon fishery.

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

Response: This proposed action would not impact public health or safety because the proposed action, consistent with the Salmon FMP, has provisions to adjust management measures if unsafe weather

affects fishery access and is consistent with previously analyzed management measures used since the FMP was adopted.

5) **Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?**

Response: This proposed action would not significantly affect any endangered or threatened species or its habitat. Several salmonid species that are potentially caught in the fishery are listed as threatened or endangered under the ESA. NMFS has issued biological opinions addressing the effects of the fishery on all of these species. The alternatives for the 2015 fishery were developed consistent with the biological opinions for these species. In addition, Southern Resident Killer Whales are listed as endangered under the ESA. The alternatives for the 2015 fishery were developed consistent with ESA Section 7 consultation on the "Effects of the Pacific Coast Salmon Plan on the Southern Resident Killer Whale Distinct Population Segment (SRKW)." This consultation, dated May 5, 2009, concluded that fisheries conducted under the Salmon FMP were not likely to jeopardize SRKW or adversely modify its critical habitat.

Ocean salmon fisheries are classified under the Marine Mammal Protection Act (MMPA) as Category III (79 FR 77919), indicating there is "a remote likelihood of or no known incidental mortality or serious injury of marine mammals" (MMPA 118(c) I). See Preseason Report II (Part 2 of this EA), section 8.4, and the Addendum of this EA (Other Applicable Law) for more information.

6) **Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc)?**

Response: Substantial impacts to biodiversity and ecosystem function are not anticipated because higher trophic level species affected by the salmon fishery are primarily marine mammals, which generally are opportunistic feeders with various available prey options, and their populations have been stable or increasing. Considerations specifically related to SRKW are more complicated but are addressed in more detail through NMFS' ESA Section 7 consultation on the fishery, as noted above. Overall, Pacific Coast salmon fisheries have a minimal impact on marine mammals, as noted above. Direct salmon fishery impacts on seabirds are minimal to non-existent. Harvest removes animals that

otherwise would have remained in the ecosystem to prey on lower trophic levels; however, salmon fishery removals are not significant in this respect and wide-scale changes in oceanographic conditions, resulting from El Niño events for example, are the primary determinants of abundance and structure of lower trophic level populations. In addition, maintaining biodiversity by conserving salmon evolutionarily significant units is a key management goal.

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

Response: Social and economic impacts are responsive to the level of fishing, and the level of fishing is directly related to forecasts of salmon stock abundance in relation to required conservation measures. Projections for 2015 suggest an economic value somewhat less than in 2014, but above recent averages for the period 2010 through 2014.

There are no significant natural or physical environmental effects expected to result from the proposed action. Therefore, there are no significant social or economic impacts interrelated with natural or physical environmental effects.

8) **Are the effects on the quality of the human environment likely to be highly controversial?**

Response: The impacts of the proposed action are not expected to be controversial, due to use of the best available science by the STT and SSC in advising the PFMC during alternative development. The proposed action was developed through the PFMC process, including a four-week period of extensive public review and discussion of the alternatives. Three public hearings were held along the West Coast, in addition to the March and April PFMC meetings. Comments provided by the public were considered in adopting the proposed action.

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

Response: No significant impacts are expected to occur on any of the above areas. No ground disturbing activity is part of this proposed action, nor does the proposed action involve contact with the benthic environment.

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

Response: The effects of this proposed action are not anticipated to be highly uncertain or involve unknown risks. The proposed 2015 ocean salmon fishery would be comparable to previous fisheries developed under the FMP, which has been in place for many years. Salmon fisheries conducted under the FMP have been monitored and analyzed in the pre-season process for many years and thus, risks from this fishery are relatively well known. There is some uncertainty involved in projecting stock abundance in a given year; however, such uncertainty is addressed through precautionary management measures and weak stock management, which results in lower impacts on healthy stocks that are intermixed with weak stocks in the fishery. Thus, there are no expected unknown risks associated with this proposed action.

11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: The action would not have any significant cumulative effects. Fisheries are managed in a sustainable manner. Managers account for impacts from other fisheries in developing the alternatives. Fisheries are conducted consistent with ESA consultations, which serve to protect multiple stocks in the mixed-stock ocean salmon fishery, especially where ocean distributions overlap. See Section 8.10 of Preseason Report II for more information.

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

Response: No significant effects of this proposed action are anticipated on cultural, scientific, or historical resources. No ground disturbing activity, nor contact with the benthic environment, is

anticipated. In addition, tribes have representation on the PFMC and are involved in the preseason planning process.

13) Can the proposed action reasonably be expected to result in the introduction or spread of non-indigenous species?

Response: The proposed action is not expected to import, introduce, or contribute to the spread of non-indigenous species. Individual fishing vessels participating in the proposed action generally depart from and return to the same port. Trailered vessels are subject to state inspection for non-indigenous species (e.g., milfoil). Disposition of the catch does not include any translocation of living marine resources, nor use of any non-indigenous species as bait.

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

Response: The action will not be setting precedents for future actions with significant effects because fishery management measures are structured each year based on best available scientific information.

15) Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for the protection of the environment?

Response: This proposed action will not threaten a violation any Federal, state, or local law or requirement imposed for the protection of the environment. The proposed action has been analyzed for consistency with applicable Federal law, and was developed upon the recommendations of the affected states.

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

Response: Cumulative effects were analyzed in the "Preseason Report II" part of the EA. While several actions and events are described that could have minor cumulative effects related to the proposed action, none were determined to have a substantial effect on the target species or non-target species.

Determination

In view of the information presented in the EA and analysis prepared for the 2015 Ocean Salmon Fisheries Management Measures, including consistency with the Salmon FMP (PFMC 2014), it is hereby determined that the approval by NMFS of this the action will not significantly impact the quality of the human environment as described above and in the supporting EA. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

April 22, 2015

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

Date