



APR 24 2014

To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act, an environmental review has been performed on the following action.

**TITLE:** 2014 Ocean Salmon Fisheries Management Measures (XRIN 0648-XD072)

**LOCATION:** Exclusive Economic Zone (3-200 nautical miles) off the Coasts of Washington, Oregon, and California

**SUMMARY:** The proposed action is to develop the 2014 ocean salmon management measures for west coast salmon fisheries. The action would be consistent with conservation objectives in the current Salmon Fishery Management Plan and current Endangered Species Act Biological Opinions that cover proposed fishing levels on all listed salmon and steelhead, as well as impacts on marine mammals. No significant impacts are anticipated.

**RESPONSIBLE**

**OFFICIAL:** Barry A. Thom  
West Coast Deputy Regional Administrator  
National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA)  
7600 Sand Point Way NE  
Seattle, WA 98115-6349

The environmental review process led us to conclude that this action will not have a significant impact on the environment. Therefore, an environmental impact statement was not prepared. A copy of the finding of no significant impact (FONSI) is enclosed for your information. The development of annual management measures for west coast salmon fisheries is a well-documented and public process. Part of this process includes the preparation of a series of documents by the Pacific Fishery Management Council (Council) and NMFS. These documents contain the elements of an Environmental Assessment (EA). Together, these documents constitute the EA in the following three documents below:

Preseason Report I: Stock Abundance Analysis and Environmental Assessment Part 1 for 2014 Ocean Salmon Fishery Regulations (February 2014)

Preseason Report II: Proposed Alternatives and Environmental Assessment Part 2 for 2014 Ocean Salmon Fishery (March 2014).

Preseason Report III: Council Adopted Management Measures and Environmental Assessment Part 3 for 2014 Ocean Salmon Fishery Regulations (April 2014).

All documents are available to the public via the Council's website ([www.pcouncil.org](http://www.pcouncil.org)).



Although NOAA is not soliciting comments on this completed EA/FONSI we will consider any comments submitted that would assist us in preparing future NEPA documents. Please submit any written comments to the Responsible Official named above.

Sincerely,



Patricia A. Montanio  
NOAA NEPA Coordinator

Enclosure



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
 NATIONAL MARINE FISHERIES SERVICE  
 Northwest Region  
 7600 Sand Point Way N.E., Bldg. 1  
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April 23, 2014

**Environmental Assessment  
 Clearance and Recommendation Memorandum**

MEMORANDUM FOR: Patricia A. Montanio  
 NOAA NEPA Coordinator

FROM: *for* Barry A. Thom *Barry Thom*  
 West Coast Deputy Regional Administrator

SUBJECT: 2014 Ocean Salmon Fisheries Management Measures (XRIN  
 0648-XD072)

The attached subject environmental assessment (EA) and Finding of No Significant Impact (FONSI) are forwarded for your review. The EA and FONSI have been prepared in accordance with the provisions of: (1) NOAA administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act; and (2) the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Parts 1500-1508).

The EA is comprised of three documents prepared by the Pacific Fishery Management Council and a Preface that describes where the NEPA elements are located within the following documents: Preseason Report I (describes Purpose and Need, Affected Environment, and the no-action alternative); Preseason Report II (describes the analysis of the action alternatives); and Preseason Report III (describes the final recommendation adopted by the Council, this is the selected alternative).

Based on the environmental impact analysis within the attached EA, I have determined that no significant environmental impacts will result from the proposed action. I therefore have approved the FONSI for this proposed action. I request your concurrence with the EA and its FONSI. I also recommend, subject to a request from the public, that you release the documents for public review.

1. I concur. *[Signature]* *for PATRICIA MONTANIO* *4/24/14*  
 NOAA NEPA Coordinator Date

2. I do not concur. \_\_\_\_\_  
 NOAA NEPA Coordinator Date



**Preface to the  
Environmental Assessment for  
2014 Ocean Salmon Fisheries Management Measures  
(XRIN 0648-XD072)**

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 2014 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](http://www.pcouncil.org)):

Preseason Report I (PRE I): Stock Abundance Analysis and Environmental Assessment Part 1 for 2014 Ocean Salmon Fishery Regulations (February 2014).

*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 2014 Ocean Salmon Fishery Regulations (March 2014).

*PRE II describes the analysis of the action alternatives.*

Preseason Report III (PRE III): Analysis of Council Adopted Management Measures for 2014 Ocean Salmon Fisheries (April 2014).

*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 2013 Ocean Salmon Fisheries (February 2014).

Table 1. Directory of NEPA elements in the Environmental Assessment for 2014 Ocean Salmon Fisheries Management Measures (XRIN 0648-XD072).

<b>NEPA Element</b>	<b>Location</b>
Purpose and Need	PRE I: Pages 1 – 2
Affected Environment	PRE I
Description of the Affected Environment	PRE I: Chapter I, pages 3 – 12
Affected Environment: Chinook Salmon	PRE I: Chapter II, pages 13 – 48
Affected Environment: Coho Salmon	PRE I: Chapter III, pages 49 – 74
Affected Environment: Pink Salmon	PRE I: Chapter IV, page 75 – 76
Alternatives	PRE I and PRE II
Description of No action alternative	PRE I: Chapter V, pages 77 – 80, and Tables V-1 – V-3
Description of Action alternatives	PRE II: Chapter 7, pages 9 – 11, and Tables 1 – 7
Analysis of Impacts (Environmental Consequences)	PRE II: Chapter 8
Impacts on salmon stocks	PRE II: Chapter 8, pages 11 – 15
Socioeconomics	PRE II: Chapter 8, pages 15 – 19, Tables 9 – 10, Figures 1 – 2
Non-target Species	PRE II: Chapter 8, pages 19 – 20
Marine Mammals	PRE II: Chapter 8, page 20
ESA Listed Species	PRE II: Chapter 8, pages 20 – 21
Seabirds	PRE II: Chapter 8, page 21
Biodiversity and Ecosystem Function	PRE II: Chapter 8, page 21
Ocean and Coastal Habitats	PRE II: Chapter 8, page 21
Public Health and Safety	PRE II: Chapter 8, pages 21 – 22
Cumulative Impacts	PRE II: Chapter 8, pages 22 - 23
Final Preferred Alternative	PRE III
Description	PRE III: Tables 1 – 4, and Figures 1 – 2
Socioeconomic Impacts	PRE III: Chapter 10, pages 14 – 15
Environmental Effects	PRE III: Chapter 11, pages 15 – 16
Compliance with other Applicable Law	Addendum

**ENVIRONMENTAL ASSESSMENT PART 1  
FOR 2014 OCEAN SALMON FISHERY  
REGULATIONS**

REGULATION IDENTIFIER NUMBER 0648-XD072

**BASED ON**

**PRESEASON REPORT I\***  
**STOCK ABUNDANCE ANALYSIS**



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**FEBRUARY APRIL 2014**

**\* Modifications from the original PFMC document are indicated in red.**

# ACKNOWLEDGMENTS

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The Salmon Technical Team and the Council staff express their thanks for the expert assistance provided by Ms. Wendy Beeghley, Ms. Cindy LeFleur, Mr. Aaron Dufault, Ms. Laurie Peterson and Mr. Jeff Haymes, Washington Department of Fish and Wildlife; Ms. Jennifer Simon and Mr. Brett Kormos, California Department of Fish and Wildlife; Mr. Andy Rankis, Northwest Indian Fisheries Commission; and numerous other agency and tribal personnel in completing this report.

This document may be cited in the following manner:

Pacific Fishery Management Council. 2014. *Preseason Report I: Stock Abundance Analysis and Environmental Assessment Part 1 for 2014 Ocean Salmon Fishery Regulations*. (Document prepared for the Council and its advisory entities.) Pacific Fishery Management Council, 7700 NE Ambassador Place, Suite 101, Portland, Oregon 97220-1384.



**Modifications from the original PFMC document are indicated in red.**

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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
NSIG	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 ( <i>U.S. v. Oregon</i> )
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 2014 meeting.

This report provides 2014 salmon stock abundance forecasts, and an analysis of the impacts of 2013 management measures, or regulatory procedures, on the projected 2014 abundance. This analysis is intended to give perspective in developing 2014 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 2014 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).

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 2014 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 2013 regulations applied to 2014 abundance forecasts. Four 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, Appendix C provides a description of the Sacramento River winter Chinook (SRWC) control rule, and Appendix D 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 2014 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, 2013 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 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 2014 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), annual catch limits (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 2014 fisheries.

## CHAPTER I: DESCRIPTION OF THE AFFECTED ENVIRONMENT

The affected environment relevant to establishing the 2014 ocean salmon fishery management measures consists of the following components:

- Target Species – Chinook, coho, and pink salmon
- ESA-listed salmon stocks
- 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 2013 Ocean Salmon Fisheries (PFMC 2014). The current status (2014 ocean abundance forecasts) of the environmental components expected to be affected by the 2014 ocean salmon fisheries regulation alternatives (FMP salmon stocks, including those listed under the ESA) are described in this report (Part 1 of the 2014 salmon EA); the Review of 2013 Ocean Salmon Fisheries (PFMC 2014) 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 2013 NEPA process for ocean salmon regulations (Preseason Reports II and III; PFMC 2013a and 2013b). 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, 2013a)
- Marine mammals – pinnipeds, killer whales (NMFS 2003, 2008; PFMC 2006, 2013a)
- Seabirds (NMFS 2003; PFMC 2006, 2013a)
- Ocean and coastal habitats, ESA critical habitat, and EFH (NMFS 2003; PFMC 2006, 2013a)
- Biodiversity and ecosystem function (NMFS 2003; PFMC 2006, 2013a)
- Unique characteristics of the geographic area (NMFS 2003; PFMC 2006, 2013a)
- Cultural, scientific, or historical resources such as those eligible for listing in the National Register of Historic Places (NMFS 2003; PFMC 2006, 2013a)
- Public health or safety (NMFS 2003; PFMC 2006, 2013a)
- 

The 2014 No-Action alternative is not expected to differ from the 2013 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 2014 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 2014 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 2014 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 2014 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. 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 NSIGs state that ABCs are not required if stocks meet this international exception. The NSIGs 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  
 $S_{OFL} = N \times (1 - F_{MSY})$ .

## 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  $F_{ABC}$ .

$$S_{ABC} = N \times (1 - F_{ABC})$$

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

$$S_{ACL} = N \times (1 - F_{ACL}),$$

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 2013 Ocean Salmon Fisheries (PFMC 2014). 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	2006	2007	2008	2009	2010	2011	2012	2013	2014	Methodology for 2014 Prediction and Source
<b>Sacramento Index</b>										
Fall	-	-	54.6 <sup>a/</sup>	122.2	245.5	729.9	819.4	834.2	634.7	Log-log regression of the Sacramento Index on jack escapement from the previous year, accounting for lag-1 autocorrelated errors. STT.
<b>Klamath River (Ocean Abundance)</b>										
Fall	110.0	546.2	190.7	505.7	331.5	371.1	1,651.8	727.7	299.3	Linear regression analysis of age-specific ocean abundance estimates on river runs of same cohort. STT.
<b>Oregon Coast</b>										
North and South/Local Migrating										None.
<b>Columbia River (Ocean Escapement)</b>										
Upriver Spring <sup>b/</sup>	88.4	78.5	269.3	298.9	470.0	198.4	314.2	141.4	227.0	Log-normal sibling regressions of cohort returns in previous run years. WDFW staff.
Willamette Spring	46.5	52.0	34.0	37.6	62.7	104.1	83.4	59.8	58.7	Age-specific linear regressions of cohort returns in previous run years. ODFW staff.
Sandy Spring	8.2	7.9	6.8	5.2	3.7	5.5	4.8	6.1	5.5	Recent year average. ODFW staff.
Cowlitz Spring	3.0	6.4	5.2	4.1	12.5	6.6	8.7	5.5	7.8	Age-specific linear regressions of cohort returns in previous run years. WDFW.
Kalama Spring	1.5	4.0	3.7	0.9	0.9	0.6	0.7	0.7	0.5	Age-specific linear regressions of cohort returns in previous run years. WDFW.
Lewis Spring	1.8	5.9	3.5	2.2	6.0	3.4	2.7	1.6	1.1	Age-specific linear regressions of cohort returns in previous run years. WDFW.
Upriver Summer	49.0	45.6	52.0	70.7	88.8	91.9	91.2	73.5	67.5	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
URB Fall	253.9	182.4	162.5	259.9	310.8	398.2	353.5	432.5	973.3	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
SCH Fall	50.0	21.8	87.2	59.3	169.0	116.4	63.8	38.0	115.1	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
LRW Fall	16.6	10.1	3.8	8.5	9.7	12.5	16.2	14.2	34.2	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
LRH Fall	55.8	54.9	59.0	88.8	90.6	133.5	127.0	88.0	110.0	Age-specific average cohort ratios/cohort regressions. Columbia River TAC subgroup and WDFW.
MCB Fall	88.3	68.0	54.0	94.5	72.6	100.0	90.8	105.2	360.1	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		2006	2007	2008	2009	2010	2011	2012	2013	2014	Methodology for 2014 Prediction and Source
Willapa Bay Fall	Natural	2.0	2.0	2.5	2.0	2.0	2.0	5.2	4.9	2.9	Return per spawners applied to 3-6 year olds (brood years 2008-11) adjusted by brood performance.
	Hatchery	29.8	29.8	27.0	34.8	31.1	31.1	40.5	22.2	29.5	
Quinalt Fall	Natural	8.7	7.3	3.7	6.9	7.6	5.9	7.7	4.0	6.0	Return per spawner by age with a 5 year adjusted average 2008-11) adjusted by brood performance.
	Hatchery	7.3	8.7	1.3	7.8	5.5	4.7	3.8	3.1	10.3	
Queets Spring/Sum	Natural	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	Recent 5 year average.
Queets Fall	Natural	3.5	2.6	3.5	4.5	4.1	2.7	5.8	3.8	3.6	Recruit ages 3,4,5 using PDO, sibling regression.
	Hatchery	1.4	1.5	7.0	1.2	9.8	1.9	1.8	0.9	0.9	
Hoh Spring/Summer	Natural	1.4	1.6	0.9	1.1	0.8	1.0	1.0	0.9	0.9	Mean return per release using 5 year means, unadjusted
Hoh Fall	Natural	4.0	2.7	2.9	2.6	3.3	2.9	2.7	3.1	2.5	Mean return per release using 5 year means, unadjusted
Quillayute Spring	Hatchery	1.7	1.3	1.7	2.0	1.5	1.4	1.5	2.1	2.0	Mean return per release using most recent 4 years adjusted by previous year performance.
Quillayute Sum/Fall	Natural	6.8	7.7	6.0	6.8	7.5	8.8	7.4	6.6	7.6	Summer: Recent 5 year mean return per spawner. Fall: Returns per spawner mean recent 5 years.
Hoko	Natural	-	-	1.1 <sup>e/</sup>	1 <sup>e/</sup>	1.8 <sup>e/</sup>	0.6 <sup>e/</sup>	1.9 <sup>e/</sup>	1.2 <sup>e/</sup>	2.7 <sup>e/</sup>	Sibling regressions.
<i>North Coast Totals</i>											
Spring/Summer	Natural	1.9	2.0	1.3	1.5	1.2	1.4	1.4	1.3	1.4	
Fall	Natural	23.0	20.3	16.1	20.8	22.5	20.3	23.6	17.5	19.7	
Spring/Summer	Hatchery	1.7	1.3	1.7	2.0	1.5	1.4	1.5	2.1	2.0	
Fall	Hatchery	8.7	10.2	8.3	9.0	15.3	6.6	5.6	4.0	11.2	
<b>Puget Sound summer/fall<sup>c/</sup></b>											
Nooksack/Samish	Hatchery	16.9	18.8	35.3	23.0	30.3	37.5	44.0	46.3	43.9	Brood release times recent 3 year average return/release rate.
East Sound Bay	Hatchery	0.4	0.4	0.8	0.1	2.3	0.4	0.4	1.9	1.2	Brood release times recent 3 year average return/release rate.
Skagit	Natural	24.1 <sup>d/</sup>	15.0 <sup>d/</sup>	23.8 <sup>d/</sup>	23.4 <sup>d/</sup>	13.0 <sup>d/</sup>	14.3 <sup>d/</sup>	8.3 <sup>d/</sup>	12.9 <sup>d/</sup>	18.0 <sup>d/</sup>	Regression of post season FRAM abundance scalars and biological/oceanographic variables.
	Hatchery	0.6 <sup>d/</sup>	1.1 <sup>d/</sup>	0.7 <sup>d/</sup>	0.6 <sup>d/</sup>	0.9 <sup>d/</sup>	1.5 <sup>d/</sup>	1.3 <sup>d/</sup>	0.3 <sup>d/</sup>	0.3 <sup>d/</sup>	

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

Production Source and Stock or Stock Group		2006	2007	2008	2009	2010	2011	2012	2013	2014	Methodology for 2014 Prediction and Source
Stillaguamish	Natural	1.6 <sup>ef</sup>	1.9 <sup>ef</sup>	1.1 <sup>ef</sup>	1.7 <sup>ef</sup>	1.4 <sup>ef</sup>	1.8 <sup>ef</sup>	0.9 <sup>ef</sup>	1.3 <sup>ef</sup>	1.6 <sup>ef</sup>	Natural plus Hatchery. Natural estimate using a recent four year avg return. Hatchery run estimate using a multiple regression environmental model (EMPAR).
	Hatchery										
Snohomish	Natural	8.7 <sup>ef</sup>	12.3 <sup>ef</sup>	6.5 <sup>ef</sup>	8.4 <sup>ef</sup>	9.9 <sup>ef</sup>	7.4 <sup>ef</sup>	2.8 <sup>ef</sup>	3.6 <sup>ef</sup>	5.3 <sup>ef</sup>	Natural run estimate using a multiple regression environmental model (EMPAR). Wallace hatchery estimated from recent 4 year returns times hatchery releases.
	Hatchery	9.6 <sup>ef</sup>	8.7 <sup>ef</sup>	8.8 <sup>ef</sup>	4.9 <sup>ef</sup>	5.6 <sup>ef</sup>	5.2 <sup>ef</sup>	3.9 <sup>ef</sup>	6.9 <sup>ef</sup>	5.4 <sup>ef</sup>	
Tulalip	Hatchery	10.0 <sup>ef</sup>	8.1 <sup>ef</sup>	4.1 <sup>ef</sup>	4.0 <sup>ef</sup>	3.4 <sup>ef</sup>	3.5 <sup>ef</sup>	5.9 <sup>ef</sup>	10.9 <sup>ef</sup>	4.7 <sup>ef</sup>	Run estimated using a multiple regression environmental model (EMPAR).
South Puget Sound	Natural	21.3	17.0	21.1	17.2	12.7	8.9	8.9	5.0	4.8	Puyallup R. recent five year average return per spawner applied to brood years contributing ages 3-5. For Nisqually, recent 5 year average of run sizes. Green R. 10 year avg return/outmigrant.
	Hatchery	85.8	92.1	101.3	93.0	97.4	118.6	95.8	102.0	96.7	Average return at age multiplied by cohort release for Green, Nisqually, Puyallup, Carr Inlet, and Area 10E.
Hood Canal	Natural	2.5 <sup>df</sup>	3.8 <sup>df</sup>	2.6 <sup>df</sup>	2.5 <sup>df</sup>	2.4 <sup>df</sup>	2.2 <sup>df</sup>	2.9 <sup>df</sup>	3.4 <sup>df</sup>	3.5 <sup>df</sup>	Natural fish based on the Hood Canal terminal run reconstruction-based relative contribution of the individual Hood Canal management units in the 2011-2013 return years
	Hatchery	27.7 <sup>df</sup>	43.6 <sup>df</sup>	34.2 <sup>df</sup>	40.1 <sup>df</sup>	42.6 <sup>df</sup>	38.4 <sup>df</sup>	43.9 <sup>df</sup>	65.7 <sup>df</sup>	80.6 <sup>df</sup>	Brood 2010 fingerling lbs released from WDFW facilities in 2011, 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 (2011-2013).
Strait of Juan de Fuca Including Dungeness spring run	Natural	4.2 <sup>df</sup>	4.4 <sup>df</sup>	3.2 <sup>df</sup>	2.4 <sup>df</sup>	1.9 <sup>df</sup>	2.5 <sup>df</sup>	2.9 <sup>df</sup>	3.1 <sup>df</sup>	3.8 <sup>df</sup>	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.
	Hatchery	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Hatchery production included in naturals.

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

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- 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		2006	2007	2008	2009	2010	2011	2012	2013	2014	Methodology for 2014 Prediction and Source
<b>OPI Area (Total Abundance) (California and Oregon Coasts and Columbia River)</b>		460.2	849.2	276.1	1,284.7	556.0	624.5	632.7	716.4	1,213.7	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	398.8	593.6	216.1	1,073.1	408.0	375.1	341.7	525.4	983.1	OPIH: 1969-2012 Columbia River jacks adjusted for delayed smolt releases and total OPI jacks regressed on 1970-2013 adults. Columbia/Coastal proportions based on jacks; Columbia early/late proportions based on jacks; Coastal N/S proportions based on smolts.
Columbia River Early		245.8	424.9	110.3	672.7	245.3	216.0	229.8	331.6	526.6	
Columbia River Late		113.8	139.5	86.4	369.7	144.2	146.5	87.4	169.5	437.5	
Coastal N. of Cape Blanco		8.6	7.0	1.7	7.3	4.4	3.6	6.4	5.6	4.8	
Coastal S. of Cape Blanco		30.6	22.2	17.7	23.4	14.1	9.0	18.1	18.7	14.2	
Lower Columbia River	Natural	NA	21.5	13.4	32.7	15.1	22.7	30.1	46.5	33.1	Oregon: recent three year cohort average; Washington: natural smolt production multiplied by 2011 brood marine survival rate. Abundance is subset of early/late hatchery abundance above.
Oregon Coast (OCN)	Natural	60.8	255.4	60.0	211.6	148.0	249.4	291.0	191.0	230.6	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 <sup>al</sup>	Hatchery	0.6	0.2	-	-	-	-	-	-	-	No forecast since 2007; releases discontinued.
<b>Washington Coast</b>											
Willapa	Natural	30.3	24.4	35.1	33.5	20.4	47.8	81.3	58.6	58.9	A variety of methods were used for 2014, primarily based on smolt production and survival. See text in Chapter III for details.
	Hatchery	37.7	37.2	25.5	59.4	78.7	64.7	88.8	37.1	41.0	
Grays Harbor	Natural	67.3	59.4	42.7	59.2	67.9	89.1	150.2	196.8	108.8	
	Hatchery	52.4	74.0	53.1	63.5	33.3	44.0	47.8	85.2	65.4	
Quinault	Natural	28.8	18.6	17.4	16.3	16.7	22.9	27.3	32.1	25.0	
	Hatchery	34.5	22.7	24.5	26.2	26.6	35.5	35.4	42.0	24.7	
Queets	Natural	8.3	13.6	10.2	31.4	21.8	13.3	37.2	24.5	10.3	
	Hatchery	11.9	19.1	10.3	13.5	11.9	16.3	25.3	19.8	15.7	
	Supplemental <sup>al</sup>	2.4	-	-	-	-	-	-	-	-	
Hoh	Natural	6.4	5.4	4.3	9.5	7.6	11.6	14.3	8.6	8.9	

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

Production Source and Stock or Stock Group		2006	2007	2008	2009	2010	2011	2012	2013	2014	Methodology for 2014 Prediction and Source	
Quillayute Fall	Natural	14.6	10.8	10.5	19.3	22.0	28.2	33.5	17.2	18.4		A variety of methods were used for 2013, 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	10.4	18.1	13.0	39.5	17.7	31.0	16.9	12.4	12.6		
Quillayute Summer	Natural	1.1	1.0	1.1	2.2	2.8	2.8	5.7	0.5	2.0		
	Hatchery	4.0	6.4	4.2	12.9	3.2	5.4	4.3	3.3	3.2		
North Coast Independent Tributaries	Natural	8.1	3.2	3.2	11.1	4.2	21.6	15.7	17.8	15.2		
	Hatchery	3.2	4.1	5.0	14.1	5.7	11.8	11.4	6.3	11.6		
WA Coast Total	Natural	174.9	132.1	129.0	156.1	174.9	241.8	338.6	374.5	247.5		
	Hatchery	159.6	174.4	135.7	225.9	178.7	204.3	220.9	211.6	174.2		
<b>Puget Sound</b>												
Strait of Juan de Fuca	Natural	26.1	29.9	24.1	20.5	8.5	12.3	12.6	12.6	12.5		
	Hatchery	20.5	18.4	9.5	7.0	7.8	15.2	18.6	17.6	17.3		
Nooksack-Samish	Natural	18.3	5.2	14.8	7.0	9.6	29.5	25.2	45.4	20.8		
	Hatchery	81.1	53.1	47.1	25.5	36.0	45.7	62.8	49.2	61.7		
Skagit	Natural	106.6	26.8	61.4	33.4	95.9	138.1	48.3	137.2	112.4		
	Hatchery	22.5	8.9	18.3	11.7	9.5	16.7	14.9	16.3	15.8		
Stillaguamish	Natural	45.0	69.2	31.0	13.4	25.9	66.6	47.5	33.1	32.5		
	Hatchery	1.2	0.0	0.1	0.0	5.4	0.6	4.1	3.1	6.0		
Snohomish	Natural	139.5	98.9	92.0	67.0	99.4	180.0	109.0	163.8	150.0		
	Hatchery	96.4	25.7	53.5	53.6	24.5	55.0	45.7	111.5	78.2		
South Sound	Natural	45.3	18.2	27.3	53.6	25.3	98.9	43.1	36.0	62.8		
	Hatchery	256.1	181.7	170.0	188.8	186.4	173.3	162.9	151.0	150.7		
Hood Canal	Natural	59.4	42.4	30.4	48.6	33.2	74.7	73.4	36.8	82.8		
	Hatchery	57.9	54.8	35.0	52.0	51.2	74.9	62.6	68.6	47.6		
Puget Sound Total	Natural	440.2	290.6	281.0	243.5	297.8	600.1	359.1	464.9	473.8		
	Hatchery	535.7	342.6	333.5	338.6	320.8	381.4	371.6	417.3	377.3		

a/ Program ended in 2005.

## CHAPTER II: AFFECTED ENVIRONMENT - CHINOOK SALMON ASSESSMENT

### CHINOOK STOCKS SOUTH OF CAPE FALCON

#### Sacramento River Fall Chinook

The Council's Salmon FMP sets the escapement goal for SRFC as a range from 122,000 to 180,000 hatchery and natural area adults. This 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.

#### *Predictor Description and Performance*

The Sacramento Index (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).

The STT based the 2013 forecast of the SI on a zero-intercept linear model relating the previous year ( $t-1$ ) SRFC jack escapement to the SI in year  $t$ , for  $t = 1990-2012$ . In 2013, the preseason forecast of 834,208 was 97 percent of its postseason value of 862,525.

Prior to 2013, the SI had been frequently over forecast, prompting an investigation into alternative models and data that could be used to improve forecast accuracy. The analysis evaluated the forecast performance of a wide range of models and data sources and compared performance of these alternative approaches to the conventional SI forecast model. The results suggested that there was scope for modest improvements in SI forecast performance, leading the STT to recommend a new SI forecasting approach for use in the future. The analysis and recommended methodology change was presented to the SSC at the November 2013 PFMC meeting and at that meeting the Council approved the use of a new SI forecasting approach for 2014 and beyond.

The new approach continues to use jack escapement estimates to predict the SI, but uses a wider range of data 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 2014 SI forecast is described below, and a more technical description of this model and its application is found in Appendix E.

The 2014 SI forecast was made using the model

$$\log SI_t = \beta_0 + \beta_1 \log J_{t-1} + \rho \varepsilon_{t-1},$$

where  $\beta_0$  is the intercept,  $\beta_1$  is the slope,  $\rho$  is the autocorrelation coefficient, and  $\varepsilon_{t-1}$  is the difference between the modeled value of the SI for year  $t-1$  and the postseason estimate of the SI for year  $t-1$ . Parameters were estimated from SI data for years 1983-2013 and jack escapement data for years 1982-2012.

### *Stock Forecast and Status*

A total of 20,248 SRFC jacks were estimated to have escaped to Sacramento River basin hatcheries and natural spawning areas in 2013. This jack escapement and the following estimates

$$\begin{aligned}\beta_0 &= 7.6816510, \\ \beta_1 &= 0.5508747, \\ \rho &= 0.7216483, \\ \varepsilon_{t-1} &= 0.2062387,\end{aligned}$$

results in a 2014 forecast of log SI = 13.29285. Transforming the 2014 log SI to the regular scale and correcting for bias in this transformation,

$$SI_t = e^{\log SI_t + 0.5\sigma^2},$$

with  $\sigma^2 = 0.1359515$ , results in a 2014 SI forecast of 634,650.

Figure II-2 graphically displays the 2014 SI forecast. For 2013, the model fit (solid curve in Figure II-2) was lower than the postseason estimate of the SI. As a result, the 2014 SI forecast value is adjusted upward from the line (vertical arrow and circle in Figure II-2).

For comparison, use of the previous SI forecasting approach would result in a 2014 SI forecast of 476,342.

For SRFC the forecast of potential spawner abundance is equivalent to the forecast of the SI. The forecast SI applied to the SRFC control rule results in an allowable exploitation rate of 0.70 which produces, in expectation, 190,395 hatchery and natural-area adult spawners. Therefore, fisheries impacting SRFC must be crafted to achieve, in expectation, a minimum of 190,395 adult spawners in 2014.

In 2014, 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  $S_{ACL}$ ). 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  $S_{OFL} = 634,650 \times (1-0.78) = 139,623$ . Because SRFC is a Tier-2 stock,  $F_{ABC} = F_{MSY} \times 0.90 = 0.70$ , and  $F_{ACL} = F_{ABC}$ . The 2014 preseason ABC for SRFC is:  $S_{ABC} = 634,650 \times (1-0.70) = 190,395$ , 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 E for a description of the control rule).

The geometric mean of SRWC escapement from years 2011-2013 is 2,380. Application of the control rule results in a maximum forecast age-3 impact rate of 15.4 percent for 2014 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 1979-2009). 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 0.47 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, 2012 age-3 forecast (390,700) was 1.36 times its postseason estimate (286,370). The age-4 forecast (331,200) was 1.63 times its postseason estimate (203,478); and the age-5 forecast (5,700) was 1.18 times its postseason estimate (4,850) (Table II-4). The preseason forecast of the adult stock as a whole was 1.47 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.

The Council's FMP conservation objective for KRFC (Amendment 16) permits an average natural spawner reduction rate via fisheries of no more than 0.68, with a minimum escapement of 40,700 natural spawning adults. The FMP allows for any ocean and river harvest allocation that meets the spawner reduction rate constraint, provided it also meets the minimum escapement goal. The regulations adopted in 2013 were expected to result in 73,800 natural-area spawning adults and an age-4 ocean harvest rate of 16.0 percent. Postseason estimates of these quantities were 59,619 natural-area adult spawners and an

age-4 ocean harvest rate of 19.6 percent (Table II-5 and Table II-6). It should be noted that KRFC escapement estimates were modified slightly after the publication of the Review of the 2013 Ocean Salmon Fisheries based on additional information.

### *Stock Forecast and Status*

The 2014 forecast for the ocean abundance of KRFC as of September 1, 2013 (preseason) is 219,800 age-3 fish, the age-4 forecast is 67,400, and the age-5 forecast is 12,100 fish.

Late-season ocean fisheries in 2013 (September through November) were estimated to have harvested 2,462 adult KRFC, including 1,835 age-4 (2.7 percent age-4 ocean harvest rate), which will be deducted from the ocean fishery's allocation in determining the 2014 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 2014 KRFC potential spawner abundance forecast is 76,952 natural-area adults. This potential spawner abundance forecast applied to the KRFC control rule results in an allowable exploitation rate of 0.47 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 2014.

In 2014, 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  $S_{OFL} = 76,952 \times (1 - 0.71) = 22,316$ . Because KRFC is a Tier-1 stock,  $F_{ABC} = F_{MSY} \times 0.95 = 0.68$ , and  $F_{ACL} = F_{ABC}$ . The 2014 KRFC  $S_{ABC} = 76,952 \times (1 - 0.68) = 24,625$ , 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 2013 the age-4 ocean harvest rate was estimated to be 19.6 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, Canada, 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 2013, 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 have been gradually increasing since 2007. The 2013 spawner counts were a 19 percent increase from 2012 (PFMC 2014, Appendix B, Table B-11).

Based on the density index of total spawners, the generalized expectation for NOC stocks in 2014 is above recent years' average abundance. Specifically, the 2013 spawner density in standard survey areas for the NOC averaged 181 spawners per mile, the 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 2014 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 2013 MOC density from standard survey areas averaged 312 adult spawners per mile, above recent years' average abundance (PFMC 2014, 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). The 2013 Huntley Park escapement estimate and the resulting 2014 ROPI forecast was then scaled to the historical carcass survey-based ROPI. The 2014 ROPI forecast (30,700) consisting of age-3 (17,400), age-4 (11,500) and age-5 (1,900) are based on the average annual age-class strengths of the carcass-based ROPIs from 1991-2004. This data set was truncated at 1991 because considerable harvest restrictions that could affect age structure began that year.

### *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 2014 ROPI is above recent years' average and the second highest since 2003 (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 2013 average density from standard survey areas was 23 adult spawners per mile (PFMC 2013, 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 2013, Chapter II, Table II-5 and Figure II-3).

## *CHINOOK STOCKS NORTH OF CAPE FALCON*

### **Columbia River Chinook**

Columbia River fall Chinook stocks typically 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 B.C. and 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 results of planned ocean fisheries.

The 2014 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 2013 Ocean Salmon Fisheries* (Appendix B, Tables B-15 through B-20). The 2013 returns for summer Chinook and the five fall Chinook stocks listed in this report may differ somewhat from those provided in the *Review of 2013 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 1.08, 1.06, 1.09, 1.20, and 1.04 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 SUM is 1.26 with a bias toward over-forecasting.

### *Stock Forecasts and Status*

The preliminary forecast for 2014 URB fall Chinook ocean escapement is 973,300 adults, about 124 percent of last year's return and about 312 percent of the recent 10-year average of 311,970. This forecast is a record high forecast and slightly higher than the 2013 record high return to the Columbia River of 784,100. This forecast is well above the FMP  $S_{MSY}$  conservation objective of 39,625 natural area spawners in the Hanford Reach, Yakima River, and areas above Priest Rapids Dam, and should allow opportunity for both ocean and in-river fisheries.

The forecast for 2014 ocean escapement of ESA-listed Snake River wild fall Chinook is approximately 31,000, similar to the preliminary return estimate of 29,264 in 2013, which is a record high since the construction of dams in the lower Snake River.

Ocean escapement of LRW fall Chinook in 2014 is forecast at 34,200 adults, about 241 percent of the recent 10-year average return of 14,190. The forecast is 133 percent greater than last year's actual return, and the spawning escapement goal of 5,700 in the North Fork Lewis River should be achieved this year. The preliminary forecast for 2014 ocean escapement of LRH fall Chinook is for a return of 110,000 adults, about 107 percent of last year's return and 135 percent of the recent 10-year average of 81,520. Based on this abundance forecast, the total allowable LCR natural tule exploitation rate for 2014 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 2014 is 115,100 adults, about 133 percent of last year's return and 145 percent of the 10-year average of 79,610.

The preliminary forecast for the 2014 ocean escapement of MCB fall Chinook is 360,100 adults, about 148 percent of last year's return and about 376 percent of the recent 10-year average of 95,800.

The preliminary forecast for summer Chinook in 2014 is 67,500 adults, similar to last year's return and about 101 percent of the recent 5-year average of 66,534. This escapement is well above the FMP  $S_{MSY}$  conservation objective of 12,143 escapement above Rock Island Dam, and should allow opportunity for both ocean and in-river fisheries.

### **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 except for Willapa Bay fall Chinook, Queets River fall Chinook, Hoh River Chinook, and Quillayute River Chinook, forecast data is unavailable in time for publication of this report; therefore, preseason abundance estimates are not presented. 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 2014 Willapa Bay hatchery fall Chinook ocean escapement forecast is 29,513, which is higher than the 2013 prediction of 22,195. The 2014 natural fall Chinook ocean escapement forecast is 2,850, which is lower than last year's prediction of 4,917, and is below the FMP  $S_{MSY}$  conservation objective of 3,393.

The 2014 Queets River natural fall Chinook forecast is for an ocean escapement of 3,576, which is lower than the 2013 forecast of 3,782. The ocean escapement is greater than the 2,500 FMP  $S_{MSY}$  conservation objective, which should allow limited flexibility in structuring 2014 ocean and river fisheries. The 2014 Queets River hatchery fall Chinook forecast is for an ocean escapement of 878, which is less than the 2013 forecast of 928.

For the Hoh River, the 2014 natural spring/summer Chinook spawning escapement is 876, below the FMP conservation objective of 900. The natural fall Chinook forecast is 2,447, which is above the FMP  $S_{MSY}$  conservation objective of 1,200.

The 2014 Quillayute hatchery spring Chinook ocean escapement forecast is 2002 and the natural summer/fall Chinook forecast is 7,604 (955 summer and 6,649 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 2014 preliminary forecast for Puget Sound summer/fall stocks is for a return of 269,800 Chinook an increase from the 2013 preseason forecast of 200,600. The 2014 natural Chinook return forecast of 37,000 (includes supplemental category forecasts) is higher than the 2013 forecast of 16,100.

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, classified as overfished, or met the criteria for approaching an overfished condition in 2014 (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, the North of Falcon mark selective recreational fishery started in May in Neah Bay and La Push subareas for a period of four days then was opened in all areas during mid to late June. In 2013, the mark selective Chinook quota was 8,000 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 2013 ocean fisheries in this area ranged from 43 to 59 percent. Based on preseason abundance forecasts, the expected mark rate for Chinook in this area for 2014 should exceed those observed in 2013.

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

Year	SRFC Ocean Harvest				River Harvest	Spawning Escapement			Sacramento Index (SI) <sup>cf</sup>	Exploitation Rate (%) <sup>df</sup>
	South of Cape Falcon <sup>af</sup>			Total		Natural	Hatchery	Total		
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 <sup>ef</sup>	91.4	27.5	118.9	536.6	78
1992	233.3	70.2	0.0	303.5	13.3 <sup>ef</sup>	59.5	22.1	81.5	398.3	80
1993	342.8	115.5	0.0	458.3	27.7 <sup>ef</sup>	110.6	26.8	137.4	623.4	78
1994	303.3	164.8	0.0	468.1	28.9 <sup>ef</sup>	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 <sup>ef</sup>	168.1	77.8	245.9	722.5	66
1999	308.1	76.7	0.0	384.8	68.9 <sup>ef</sup>	353.7	46.1	399.8	853.5	53
2000	432.7	153.2	0.0	585.8	59.5 <sup>ef</sup>	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 <sup>ef</sup>	682.7	87.2	769.9	1,498.5	49
2003	506.5	106.9	0.0	613.4	85.4	413.4	109.6	523.0	1,221.7	57
2004	622.0	213.0	0.0	835.0	46.8	203.5	83.4	286.9	1,168.7	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)

Year	SRFC Ocean Harvest South of Cape Falcon <sup>a/</sup>				River Harvest	Spawning Escapement			Sacramento Index (SI) <sup>c/</sup>	Exploitation Rate (%) <sup>d/</sup>
	Troll	Sport	Non-Ret <sup>b/</sup>	Total		Natural	Hatchery	Total		
2007	120.0	32.2	0.0	152.2	14.3 <sup>e/</sup>	70.0	21.4	91.4	257.9	65
2008	3.2	0.9	0.0	4.1	0.1 <sup>e/</sup>	46.9	18.5	65.4	69.6	6
2009	0.0	0.2	0.1	0.3	0.0 <sup>e/</sup>	23.3	17.5	40.9	41.1	1
2010	11.8	11.4	0.3	23.5	2.5 <sup>e/</sup>	84.6	39.7	124.3	150.3	17
2011	46.7	22.8	0.0	69.6	17.4 <sup>e/</sup>	76.5	42.9	119.3	206.3	42
2012	183.6	93.3	0.3	277.2	62.2 <sup>e/</sup>	163.2	122.3	285.4	624.9	54
2013 <sup>f/</sup>	291.0	111.4	0.0	402.4	55.5 <sup>e/</sup>	300.8	103.9	404.7	862.5	53

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).

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.

Year	Escapement <sup>a/</sup>	3-yr GM Escapement <sup>b/</sup>	Age-3 impact rate south of Point Arena, CA		
			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	-	-	- <sup>c/</sup>
2011	824	2,678	-	-	28.5
2012	2,674	1,797	13.7	13.7	13.6 <sup>d/</sup>
2013	6,122	1,521	12.9	12.9	NA <sup>e/</sup>
2014	NA	2,380	15.4	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., 2013 GM computed from 2010-2012 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.

Year (t)	Ocean Abundance Sept. 1 (t-1)			Annual Ocean Harvest Rate Sept. 1 (t-1) - Aug. 31 (t)		Klamath Basin River Run (t)				Total Adults
	Age-3	Age-4	Total	Age-3	Age-4	Age-2	Age-3	Age-4	Age-5	
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	513.6	98.9	612.5	0.02	0.15	9.2	94.6	62.5	3.7	160.8
2003	400.2	192.2	592.4	0.08	0.21	3.8	94.3	96.8	0.9	191.9
2004	159.6	105.1	264.6	0.12	0.34	9.7	33.2	40.7	5.3	79.2
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	241.9	64.6	306.5	0.03	0.08	84.9	59.0	41.0	2.0	102.0
2012	810.1 <sup>a/</sup>	75.2	885.3	0.03 <sup>a/</sup>	0.08	21.1	240.8	49.0	2.1	291.9
2013	286.4 <sup>b/</sup>	203.5 <sup>a/</sup>	489.8	NA <sup>c/</sup>	0.20 <sup>a/</sup>	14.4	55.3	108.8	1.1	165.1

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 <sup>a/</sup>	Postseason Estimate	Pre/Postseason
	Sept. 1 (t-1)	Sept. 1 (t-1)	
	<b>Age-3</b>		
1985	113,000	276,000	0.41
1986	426,000 <sup>b/</sup>	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	513,561	0.41
2003	171,300	400,242	0.43
2004	72,100	159,560	0.45
2005	185,700	189,976	0.98
2006	44,100	90,606	0.49
2007	515,400	376,841	1.37
2008	31,600	68,003	0.46
2009	474,900	240,713	1.97
2010	223,400	192,791	1.16
2011	304,600	241,907	1.26
2012	1,567,600	810,145	1.93
2013 <sup>c/</sup>	390,700	286,370	1.36
2014	219,800	--	--

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 <sup>a/</sup>	Postseason Estimate	Pre/Postseason
	Sept. 1 (t-1)	Sept. 1 (t-1)	
	<b>Age-4</b>		
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	192,156	0.69
2004	134,500	105,051	1.28
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	64,586	0.95
2012	79,600	75,179	1.06
2013 <sup>c/</sup>	331,200	203,478	1.63
2014	67,400	--	--

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 <sup>a/</sup>		Postseason Estimate	
	Sept. 1 (t-1)		Sept. 1 (t-1)	Pre/Postseason
	<b>Age-5</b>			
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		17,170	0.56
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		5,123	0.90
2013 <sup>c/</sup>	5,700		4,850	1.18
2014	12,100		--	--

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 <sup>a/</sup>	Postseason Estimate	Pre/Postseason
	Sept. 1 (t-1)	Sept. 1 (t-1)	
<b>Total Adults</b>			
1985	169,875 <sup>d/</sup>	344,613	0.49
1986	492,250 <sup>d/</sup>	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	619,421	0.59
2003	310,200	594,313	0.52
2004	216,300	281,781	0.77
2005	239,800	234,912	1.02
2006	110,000	159,225	0.69
2007	546,200	413,367	1.32
2008	190,700	152,269	1.25
2009	505,700	268,896	1.88
2010	331,500	255,400	1.30
2011	371,200	309,246	1.20
2012	1,651,800	890,447	1.86
2013 <sup>c/</sup>	727,600	494,698	1.47
2014	299,300	--	--

a/ Original preseason forecasts for years 1985-2001 were for May 1 (t); converted to Sept. 1 (t-1) forecasts by dividing the assumed May 1 (t) number by the 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.

Year(t)	Abundance Forecast <sup>a/</sup> Sept. 1 (t-1)		Postseason Ocean Abundance Estimate Sept. 1 (t-1)		Preseason Age-4 Harvest Rate Forecast <sup>b/</sup>		Postseason Age-4 Harvest Rate Estimate <sup>c/</sup>		Preseason Adult Harvest Forecast		Postseason Adult Harvest Estimate	
	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	513,561	98,927	0.13	0.57	0.15	0.26	30,000	70,900	28,895	35,069
2003	171,300	132,400	400,242	192,156	0.16	0.50	0.21	0.28	30,600	52,200	70,684	39,715
2004	72,100	134,500	159,560	105,051	0.15	0.38	0.34	0.48	26,500	35,800	63,885	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	376,841	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	192,791	62,092	0.12	0.49	0.04	0.40	22,600	46,600	4,497	32,920
2011	304,600	61,600	241,907	64,586	0.16	0.54	0.08	0.34	26,900	42,700	12,117	30,502
2012	1,567,600	79,600	810,145	75,179	0.16	0.77	0.08	0.51	92,400	227,600	35,555	109,312
2013 <sup>d/</sup>	390,700	331,200	286,370	203,478	0.16	0.62	0.20	0.51	74,800	154,800	63,082	82,499
2014	219,800	67,400	-	-	-	-	-	-	-	-	-	-

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 assumed 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)

Year (t)	Ocean Fisheries (Sept. 1 (t-1) - Aug. 31 (t) )						River Fisheries (t)			
	KMZ			North of	South of	Ocean Total	Net	Sport	Total	
	Troll	Sport	Subtotal	KMZ	KMZ					
<b>HARVEST (numbers of fish)</b>										
<b>Age-3</b>										
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	784	1,004	1,501	9,915	11,416	12,420	11,734	6,258	17,992
2003	173	679	852	1,885	27,309	29,194	30,046	6,996	5,061	12,057
2004	402	971	1,373	9,719	7,331	17,050	18,423	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	1,665	1,665	1,805	13,132	1,884	15,016
2011	337	1,152	1,489	35	4,913	4,948	6,437	13,286	2,630	15,916
2012 <sup>av</sup>	1,150	11,647	12,797	951	13,433	14,384	27,181	70,409	12,157	82,566
2013 <sup>av</sup>	421	6,012	6,433	939	12,906	13,845	20,278	18,924	7,651	26,575

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

Year (t)	Ocean Fisheries (Sept. 1 (t-1) - Aug. 31 (t) )						River Fisheries (t)			
	KMZ			North of	South of	Subtotal	Ocean Total	Net	Sport	Total
	Troll	Sport	Subtotal	KMZ	KMZ					
<b>HARVEST (numbers of fish)</b>										
<b>Age-4</b>										
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	7,855	30,007	37,862	39,614	22,754	4,592	27,346
2004	1,421	1,215	2,636	11,504	21,949	33,453	36,089	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	3,781	4,824	5,417	12,587	1,466	14,053
2012	343	2,131	2,474	776	3,020	3,796	6,270	23,285	1,714	24,999
2013 <sup>a/</sup>	4,409	6,441	10,850	4,175	24,817	28,992	39,842	43,480	11,996	55,476

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

Year (t)	Ocean Fisheries (Sept. 1 (t-1) - Aug. 31 (t) )						River Fisheries (t)			
	KMZ			North of	South of	Subtotal	Ocean Total	Net	Sport	Total
	Troll	Sport	Subtotal	KMZ	KMZ					
<b>HARVEST RATE<sup>b/</sup></b>										
<b>Age-3</b>										
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 <sup>a/</sup>	0.00	0.01	0.02	0.00	0.02	0.02	0.03	0.29	0.05	0.34
2013 <sup>a/</sup>	0.00	0.02	0.02	0.00	0.05	0.05	0.07	0.34	0.14	0.48

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

Year (t)	Ocean Fisheries (Sept. 1 (t-1) - Aug. 31 (t) )						River Fisheries (t)			
	KMZ			North of	South of	Subtotal	Ocean Total	Net	Sport	Total
	Troll	Sport	Subtotal	KMZ	KMZ					
<b>HARVEST RATE<sup>b/</sup></b>										
<b>Age-4</b>										
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	0.48	0.04	0.51
2013 <sup>a/</sup>	0.02	0.03	0.05	0.02	0.12	0.14	0.20	0.40	0.11	0.51

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 <sup>a/</sup>					Ocean Impact Rate by Age <sup>b/</sup>		Rogue Ocean Population Index (ROPI) in Thousands of Fish <sup>c/</sup>			
	Age-2	Age-3	Age-4	Age-5	Total <sup>d/</sup>	Age-3	Age-4-5	Age-3	Age-4	Age-5	Total
1982	0.7	1.3	1.3	0.1	3.4	0.30	0.52	9.8	2.9	0.3	13.0
1983	0.3	1.1	1.5	0.0	2.9	0.19	0.60	8.6	4.4	0.1	13.1
1984	0.4	1.2	1.8	0.1	3.5	0.08	0.38	9.9	4.7	0.2	14.8
1985	2.5	1.3	3.5	0.6	7.9	0.11	0.25	9.7	6.3	0.9	16.9
1986	3.1	12.5	2.3	0.5	18.4	0.18	0.46	71.3	5.9	1.0	78.2
1987	2.6	7.8	18.1	0.4	28.9	0.16	0.43	80.3	36.3	0.6	117.2
1988	1.4	4.8	25.2	1.5	32.9	0.20	0.39	17.3	47.9	2.5	67.7
1989	0.5	1.3	4.0	2.0	7.8	0.15	0.36	8.4	7.2	3.2	18.8
1990	0.0	0.3	1.4	0.2	1.9	0.30	0.55	6.0	4.7	0.5	11.2
1991	0.2	0.4	1.9	0.5	3.0	0.03	0.18	3.5	3.2	0.6	7.3
1992	0.5	0.3	1.5	0.5	2.8	0.02	0.07	4.4	2.4	0.6	7.4
1993	0.3	3.5	1.5	0.5	5.8	0.05	0.16	16.1	3.2	0.6	19.9
1994	0.5	0.8	5.8	0.9	8.0	0.03	0.09	3.0	9.5	0.9	13.4
1995	0.2	0.6	1.4	2.0	4.2	0.04	0.13	4.3	1.7	2.3	8.3
1996	0.1	0.4	1.8	0.1	2.4	0.05	0.16	2.4	2.8	0.1	5.3
1997	0.1	0.3	1.0	0.3	1.7	0.01	0.06	5.2	1.5	0.3	7.0
1998	0.0	0.5	2.8	0.3	3.6	0.00	0.09	3.8	3.9	0.3	8.0
1999	0.2	0.3	1.6	0.5	2.6	0.01	0.09	1.5	2.7	0.6	4.8
2000	0.2	2.0	0.8	0.6	3.6	0.06	0.10	9.9	0.9	0.6	11.4
2001	0.8	2.3	4.2	0.0	7.3	0.03	0.09	14.1	5.9	0.0	20.0
2002	0.9	4.0	7.1	0.8	12.7	0.02	0.15	32.2	9.1	0.9	42.2
2003	0.9	2.3	12.0	0.4	15.6	0.08	0.21	14.4	22.1	0.5	37.0
2004	0.4	0.6	4.9	2.9	8.8	0.12	0.34	3.9	9.7	4.4	18.0
2005 <sup>f/</sup>	NA	NA	NA	NA	NA	0.02	0.20	7.6	5.0	0.8	13.4
2006 <sup>f/</sup>	NA	NA	NA	NA	NA	0.01	0.10	4.9	3.2	0.5	8.6
2007 <sup>f/</sup>	NA	NA	NA	NA	NA	0.06	0.21	5.8	3.8	0.6	10.2
2008 <sup>f/</sup>	NA	NA	NA	NA	NA	0.00	0.10	6.9	4.6	0.7	12.2
2009 <sup>f/</sup>	NA	NA	NA	NA	NA	0.00	0.00	6.1	4.0	0.7	10.7
2010 <sup>f/</sup>	NA	NA	NA	NA	NA	0.01	0.04	9.8	6.5	1.1	17.3
2011 <sup>f/</sup>	NA	NA	NA	NA	NA	0.03	0.08	9.5	6.3	1.0	16.8
2012 <sup>f/</sup>	NA	NA	NA	NA	NA	0.03	0.08	25.4 <sup>e/</sup>	16.8	2.7	45.0 <sup>e/</sup>
2013 <sup>f/</sup>	NA	NA	NA	NA	NA	0.07	0.20	11.2 <sup>g/</sup>	7.4 <sup>g/</sup>	1.2	19.9 <sup>g/</sup>
2014 <sup>f/</sup>	NA	NA	NA	NA	NA	-	-	17.4 <sup>g/</sup>	11.5 <sup>g/</sup>	1.9 <sup>g/</sup>	30.7 <sup>g/</sup>

a/ Index based on carcass counts in spawning survey index areas. Carcass counts in 1978, 1979, and 1980 adjusted for prespawning mortality. Age composition developed from carcass scale sampling.

b/ Exploitation rates since 1981 are based on Klamath River fall Chinook cohort analysis, 1977-1980 based on 1981-1983 average.

c/ Based on cohort reconstruction methods. Index values for 2014 predicted from regression equations; postseason estimates are not available.

d/ Excludes age-6 fish.

e/ Preliminary, complete cohort not available, mean maturity rate used to derive estimate.

f/ Spawning surveys were discontinued 2005.

g/ 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	April STT Modeled	Postseason Return	March	April
	Forecast <sup>a/</sup>	Forecast <sup>b/</sup>		Pre/Postseason	Pre/Postseason
<b>URB</b>					
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 <sup>c/</sup>	973.30	-	-	-	-
<b>LRW</b>					
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 <sup>c/</sup>	34.20	-	-	-	-

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 <sup>a/</sup>	April STT Modeled Forecast <sup>b/</sup>	Postseason Return	March Pre/Postseason	April Pre/Postseason
<b>LRH</b>					
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 <sup>c/</sup>	110.00	-	-	-	-
<b>SCH</b>					
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 <sup>c/</sup>	115.10	-	-	-	-

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 <sup>a/</sup>	April STT Modeled Forecast <sup>b/</sup>	Postseason Return	March Pre/Postseason	April Pre/Postseason
<b>MCB</b>					
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 <sup>c/</sup>	360.10	-	-	-	-
<b>SUMMER</b>					
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 <sup>c/</sup>	67.50		-	-	

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. Comparison of preseason forecasts and postseason estimates of Puget Sound run size for summer/fall Chinook in thousands of fish.<sup>a/</sup> (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
	<b>Nooksack-Samish Hatchery and Natural</b>			<b>East Sound Bay Hatchery</b>			<b>Skagit Hatchery</b>			<b>Skagit Natural</b>		
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 <sup>b/</sup>	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	47.2	NA	NA	2.0	NA	NA	0.3	NA	NA	12.9	NA	NA
2014	43.9	-	-	1.2	-	-	0.3	-	-	18.0	-	-

TABLE II-9. Comparison of preseason forecasts and postseason estimates of Puget Sound run size for summer/fall Chinook in thousands of fish.<sup>a/</sup> (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
	<b>Stillaguamish<sup>c/</sup> Natural</b>			<b>Snohomish<sup>c/</sup> Hatchery</b>			<b>Snohomish<sup>c/</sup> Natural</b>			<b>Tulalip<sup>c/</sup> Hatchery</b>		
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 <sup>b/</sup>	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	1.3	NA	NA	5.9	NA	NA	3.6	NA	NA	10.9	NA	NA
2014	1.0	-	-	5.4	-	-	5.3	-	-	4.7	-	-

TABLE II-9. Comparison of preseason forecasts and postseason estimates of Puget Sound run size for summer/fall Chinook in thousands of fish.<sup>a/</sup> (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
	<b>South Puget Sound Hatchery</b>			<b>South Puget Sound Natural</b>			<b>Strait of Juan de Fuca Hatchery</b>			<b>Strait of Juan de Fuca Natural</b>		
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 <sup>b/</sup>	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	102.0	NA	NA	5.0	NA	NA	2.7	NA	NA	1.6	NA	NA
2014	96.7	-	-	4.8	-	-	3.8	-	-	1.5	-	-

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

Year	Preseason Forecast	Postseason Return	Pre/Post-season
	<b>Hood Canal Hatchery and Natural</b>		
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 <sup>b/</sup>	46.8	90.3	0.52
2013	66.2	NA	NA
2014	84.2	-	-

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.

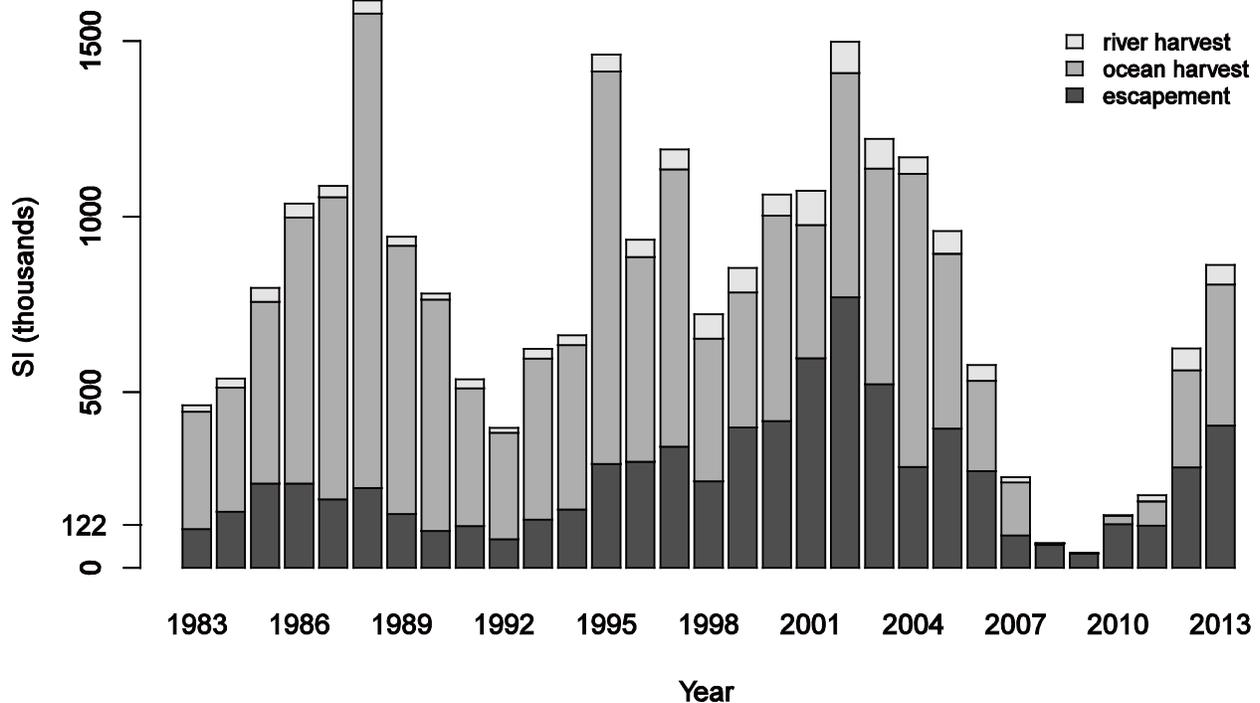


FIGURE II-1. The Sacramento Index (SI) and relative levels of its components. The Sacramento River fall Chinook  $S_{MSY}$  of 122,000 adult spawners is noted on the vertical axis.

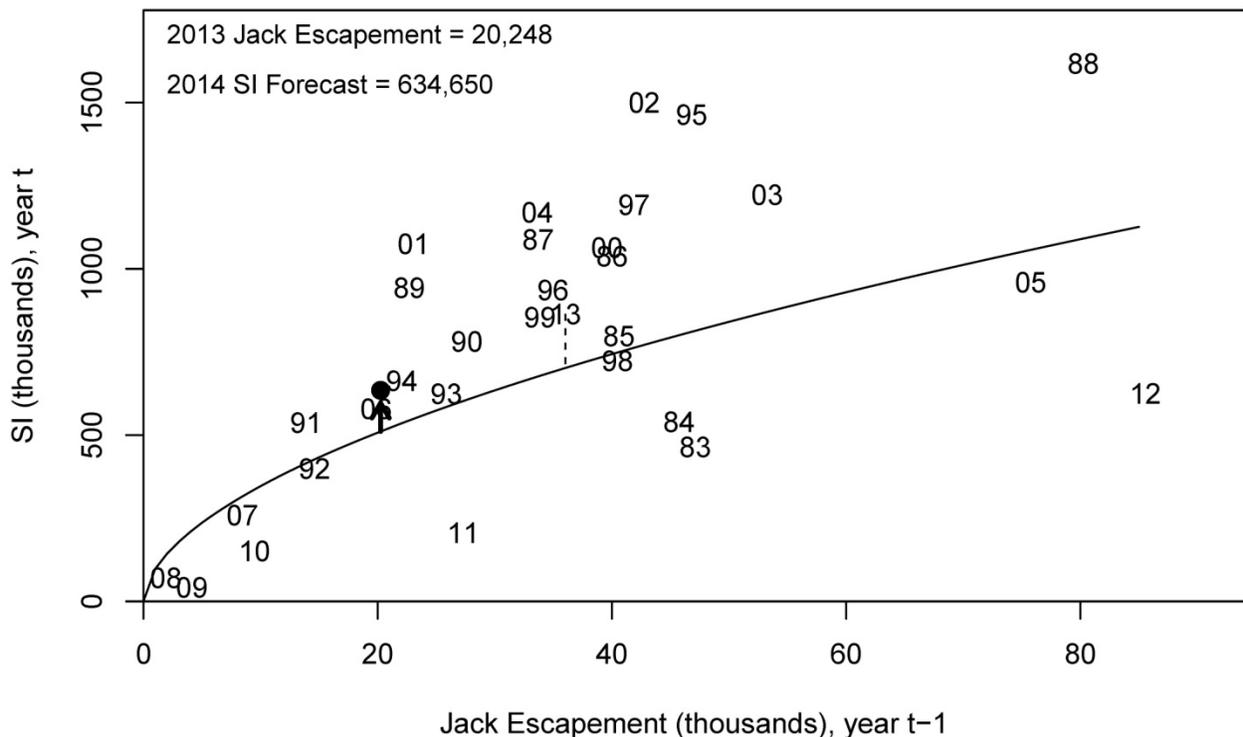


FIGURE II-2. Sacramento Index (SI) forecast based on log-log regression of the SI on jack escapement from the previous year, accounting for autocorrelated errors. The solid line represents the fitted model, the dashed line represents the error between the fitted model and the SI for the previous year, the arrow represents the deviation from the model owing to autocorrelation in the error from the previous year, and the solid circle is the SI forecast. Years shown are SI years.

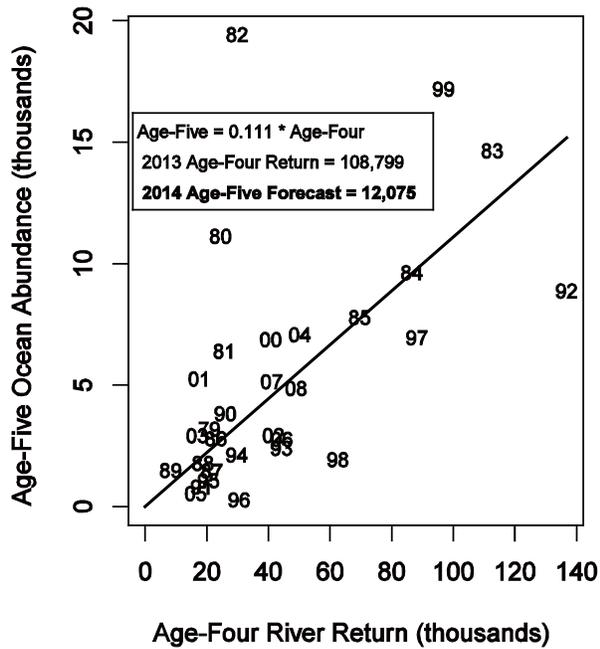
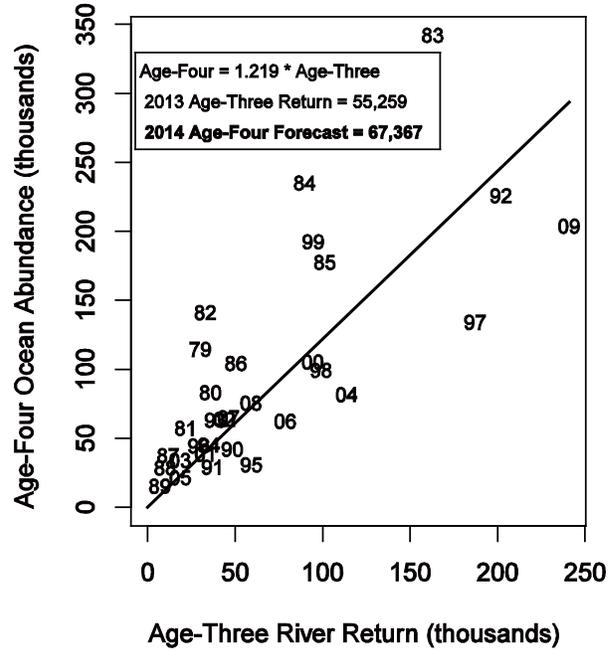
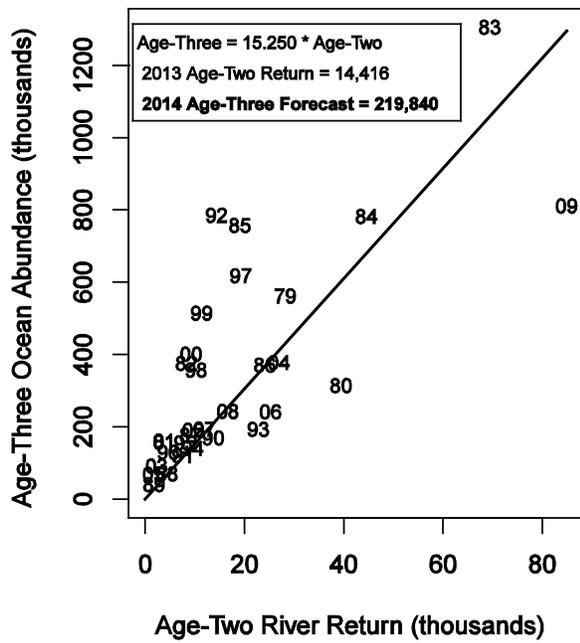


FIGURE II-3. Regression estimators for Klamath River fall Chinook ocean abundance (September 1) based on that year's river return of same cohort. Numbers in plots denote brood years.



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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 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 backwards 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 D, Table D-1.

There have been no Oregon coastal private hatchery coho (PRIH) coho 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 2013 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 2014 partition was based on the proportion of the smolt releases in 2013.

For the 2014 abundance forecast, the data base includes 1970-2013 recruits and 1969-2012 jack returns (in thousands of fish). The model was:

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

Where:

$$\begin{aligned} a &= 18.35 \\ b &= 25.00 \\ \text{adjusted } r^2 &= 0.98 \end{aligned}$$

The OPIH stock data set and a definition of the above terms are presented in Appendix D, Table D-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 2013 preseason abundance prediction of 525,400 OPIH coho was 1.66 times the preliminary postseason estimate of 316,900 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 D, Table D-2, the OPIH abundance forecast for 2014 is 983,100 coho, 1.87 times the 2013 prediction and 3.10 times the preliminary 2013 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 SONCC and 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  $\varepsilon$  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.

GAM Model Predictor used for 2014 forecast was:

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

Variables			Prediction	$r^2$	OCV <sup>a/</sup>
PDO	Spring Transition (Julian date; t-1)	Log Spawners (t-3)	185,400	0.76	0.67
PDO	Multivariate ENSO Index (Oct-Dec; t-1)	Upwelling (July-Sept; t-1)	213,100	0.73	0.64
PDO	Spring Transition (Julian date; t-1)	Multivariate ENSO Index (Oct-Dec; t-1)	191,600	0.73	0.64
PDO	Upwelling (July-Sept; t-1)	Sea Surface Temperature (May-Jul; t-1)	257,000	0.71	0.62
PDO	Sea Surface Height (Apr-June; t-1)	Upwelling (July-Sept; t-1)	241,100	0.74	0.65
PDO	Upwelling (Sept-Nov; t-1)	Sea Surface Temperature (Jan; t)	201,700	0.69	0.58
Ensemble Mean (90% prediction intervals)			213,400 (107,800-422,900)	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 D, Table D-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 (Tennile, 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 2014, OPITT chose to use the most recent three-year average adult stock abundance, which predicts 17,200 coho.

### *Predictor Performance*

Recent year OCN preseason abundance predictions are compared to postseason estimates in Table III-1. The 2013 preseason abundance prediction of 191,000 OCN coho was 1.49 times the preliminary postseason estimate of 128,400 coho.

### *Stock Forecasts and Status*

The 2014 preseason prediction for OCN (river and lake systems combined) is 230,600 coho, 1.21 times the 2013 preseason prediction and 1.80 times the 2013 postseason estimate (Table III-1). The 2014 preseason prediction for OCNR and OCNL components are 213,400 and 17,200 coho, respectively.

Based on parent escapement levels and observed OPI smolt-to-jack survival for 2011 brood OPI smolts, the total allowable OCN coho exploitation rate for 2014 fisheries is no greater than 20.0 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 in 2014<sup>1</sup>. Based on this methodology the marine survival index of 7.1 percent allows for a total allowable exploitation rate for 2014 fisheries that is no greater than 30.0 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 2014 prediction for the Clackamas River is based on the 3 cohort average. The Clackamas ocean abundance forecast for 2014 is 2,000. The forecast for other Oregon lower Columbia natural (LCN) populations, including the Sandy River, are also the 3 cohort average of recent year abundances based on spawning ground counts. The 2014 LCN coho ocean abundance forecast for all Oregon areas combined is 6,300 coho.

The 2014 prediction for the Washington LCN coho populations are derived by combining estimates of the 2011 brood year natural smolt production based on watershed area and the marine survival rate of 3.0 percent. The 2014 adult ocean abundance forecast for Washington LCN coho is 26,800 coho.

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<sup>1</sup> 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.

### *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 2013 preseason abundance prediction of 46,500 LCN coho was 2.61 times the preliminary postseason estimate of 17,800 coho.

### *Stock Forecast and Status*

The 2014 prediction for LCN coho is 33,100 coho (Table III-1). This ocean 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. Based on parent escapement levels in the Sandy and Clackamas and observed OPI smolt-to-jack survival for 2011 brood OPI smolts, the allowable LCN coho marine exploitation rate in the ODFW matrix for 2014 fisheries is no greater than 22.5 percent; therefore, if the NMFS guidance is consistent with recent years, the total allowable marine and mainstem Columbia River exploitation rate for LCN coho in 2014 fisheries would be no more than 22.5 percent.

### **Oregon Production Index Area Summary of 2013 Stock Forecasts**

The 2014 combined OPI area stock abundance is predicted to be 1,213,700 coho, which is 1.69 times the 2013 preseason prediction of 716,400 coho and 2.73 times the 2013 preliminary postseason estimate of 445,300 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.

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 the marine survival rate of 1.96 percent calculated from a regression using PDO (May-Nov) applied to the 2011 brood year smolts. The natural forecast is based on a calculated marine survival rate of 6.50 percent using a regression of wild run size to minimum PDO (Jan-

July) then applied to the 2011 escapement. It was then expanded to ocean age-3 recruits using an average of SUS pre-terminal recoveries of CWT'ed coho for brood years 2004-2012.

### *Predictor Performance*

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

### *Stock Forecasts and Status*

The 2014 Willapa Bay hatchery coho abundance forecast is 40,998 ocean recruits compared to a 2013 preseason forecast of 37,089. The 2014 natural coho forecast is 58,883 ocean recruits, compared to a 2013 preseason forecast of 58,648.

### **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 natural coho forecast consists of an estimate of smolt production in the Humptulips and Chehalis basins multiplied by a PDO-based marine survival rate. The marine survival rate used was the midpoint between 6% that was proposed by WDFW and January age 3 of 3.36% (adjusted to Ocean Age 3 2.728%) that was proposed by the Quinault Indian Nation, giving a marine survival rate of 4.364%.

The forecast of Humptulips hatchery Coho forecast is based on smolt releases multiplied by the average return-per-release for four years (2009-2012 BY), and then expanded to Ocean Age 3 abundance based on SUS CWT recoveries for 2003-12 return years. The forecast for Chehalis hatchery Coho is based on regression relationship between terminal return per release and the minimum mean PDO variable January to July. Terminal recruits are expanded to OA3 based on SUS CWT recoveries from CWT recoveries 2003-2012.

### *Predictor Performance*

A comparison of preseason ocean age-3 forecasts with postseason estimates for Grays Harbor natural coho derived from Backwards 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 2014 is 108,756 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 65,393 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  $S_{OFL} = 108,756 \times (1-0.65) = 38,065$ . The preseason  $S_{OFL}$  value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

## **Quinault River**

### *Predictor Description*

The forecast was based on the mean of the estimated ocean run sizes for the years 1998, 1999, 2001 to 2005, and 2007 to 2013. Terminal run sizes were expanded for ocean tag recoveries through 2012, using the Quinault National Hatchery tag group recoveries for ocean to terminal expansions. For 2013 the mean 2011 and 2012 expansions were used.

The 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 through 2012 as explained for Natural coho, above. For 2013 the mean 2011 and 2012 expansions were used.

### *Predictor Performance*

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

### *Stock Forecasts and Status*

The 2014 forecast for Quinault natural coho is 25,035 age-3 ocean recruits, a decrease of 22 percent from the 2013 forecast of 32,060.

The Quinault hatchery coho forecast is 24,709 age-3 ocean recruits, including 21,523 marked coho and 3,186 unmarked coho.

## **Queets River**

### *Predictor Description*

The natural coho forecast represents the estimated smolt production (379,090) multiplied by an expected survival rate of 3.4 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 2012 (698,337) multiplied with a long term average (1986-2012) marine survival rate of 2.25 percent.

Approximately 88 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 Backwards FRAM run reconstruction indicated no persistent tendency to under- or over- predict abundance. The 2012 forecast was much higher than the postseason estimate (Table III-3; Figure III-1).

### *Stock Forecasts and Status*

The 2014 Queets natural coho forecast is 10,330 ocean recruits, a decrease compared to the 2013 forecast level of 24,520. This ocean abundance results in an allowable exploitation rate of 65 percent under the FMP and classification of the stock abundance as "low" under the 2002 PST Southern Coho Management Plan (Table III-5).

The 2011 Queets hatchery (Salmon River) coho forecast is 15,699 ocean recruits, a decrease of 21 percent compared to the 2013 forecast of 19,747.

## OFL

The OFL is defined in terms of spawner escapement ( $S_{OFL}$ ). For Queets River coho  $MFMT = 0.65$ , and the OFL is  $S_{OFL} = 10,330 \times (1-0.65) = 3,616$ . 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 (679.5 smolts/square mile), multiplied by the size of the Hoh watershed (299 square miles), for a total of 203,166 smolts. The total natural smolt production estimate was then multiplied by an expected marine survival rate of 4.4 percent. This is the mean of two estimates for wild coastal coho populations, the Queets River at 2.8 percent from Quinault Fisheries Department and Bingham Creek wild coho, the WDFW report regressed several ocean indicators against survival data to arrive at a 6.0 percent survival.

The 4.4% 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 2014.

### *Predictor Performance*

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from Backwards FRAM run reconstruction indicated a tendency to under-predict actual run-size (Table III-3; Figure III-1). In 2012, the preseason forecast was higher than the postseason return.

### *Stock Forecasts and Status*

The 2014 Hoh River natural coho forecast is 8,939 ocean recruits, an increase of 4.0 percent compared to the 2013 forecast of 8,610. 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).

## OFL

The OFL is defined in terms of spawner escapement ( $S_{OFL}$ ). For Hoh River coho  $MFMT = 0.65$ , and the OFL is  $S_{OFL} = 8,939 \times (1-0.65) = 3,129$ . 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 95,128 smolts (Quinault Fisheries Department), which is 1.50 times its average production during the years the Bogachiel was trapped (1987, 88, and 90), and 1.56 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 325,886, and the Dickey production is estimated at 88,344 smolts multiplied by 1.56, yielding an additional 137,817 smolts. The

total production for the system is estimated at 463,702 smolts. Separating these into summer and fall coho smolts by the relative number of spawners in brood year 2011 yields estimates of 45,582 summer coho smolts and 418,120 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 (45,582) and a projected ocean survival rate of 4.4 percent. This is a lower ocean survival rate than the 5.8 percent used in 2013.

An examination of the return rates of both hatchery releases and natural smolts indicates that hatchery return rates are 1.4 percent below natural returns. Thus, for the hatchery component, an ocean survival rate of 3.0 percent was selected. The survival rate of 3.0 percent was multiplied by a release of 421,183 smolts.

#### Fall Coho

The forecast for the natural component was based on the estimated total fall coho smolt production (418,120) multiplied by an expected marine survival rate of 4.4 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 (3.0 percent) used for the summer hatchery coho forecast, multiplied by a release of 45,582 smolts.

#### *Predictor Performance*

A comparison of preseason ocean age-3 forecasts with postseason estimates for fall natural coho derived from Backwards FRAM run reconstruction indicated no notable bias (Table III-3; Figure III-1). The 2012 preseason forecast exceeded the postseason estimate by a factor of 2.70.

#### *Stock Forecasts and Status*

The 2014 Quillayute River summer natural and hatchery coho forecasts are 2,006 and 3,230 ocean recruits, respectively. Approximately 100 percent of the hatchery smolts were marked with an adipose fin clip. The 2014 forecast abundance of natural summer coho is 76 percent higher than the 2013 forecast, while the hatchery forecast is 2 percent lower than the 2013 forecast.

The 2014 Quillayute River fall natural and hatchery coho forecasts are 18,397 and 12,635 ocean recruits, respectively. The 2014 forecast abundance of natural Quillayute fall coho is 6 percent higher, and the hatchery forecast is 2 percent higher than their respective 2013 forecasts. The hatchery smolts were marked as follows: 264,990 with adipose fin-clip only; 76,456 with adipose fin-clip and CWT; 76,788 with CWT only and 2,949 without adipose fin-clip or CWT.

The ocean abundance forecast for Quillayute fall natural coho results in classification of the stock abundance as "moderate" 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, Conner Creek), which flow directly

into the Pacific Ocean, is forecast as an aggregate. Generally, stock assessment programs on these systems are minimal.

The 2014 forecast of natural coho production for these independent streams is based on a prediction of 600 smolts per square mile of watershed drainage, 424 square miles of watershed, resulting in 254,000 smolts multiplied by an expected marine survival rate of 6.0 percent. This rate was the average of the jack-based and the PDO models.

The hatchery forecast is based on the relationship between the log-transformed jack return rate to Makah National Fish Hatchery and the log-transformed marine survival rate from smolt to January age-3. The predicted marine survival of 5.45 percent for the brood year 2011 was multiplied by brood year smolt release (213,770) 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 2014 forecast of natural coho production for these independent streams is 15,240 age-3 ocean recruits. The hatchery forecast is 11,643 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 2011 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 2014 total hatchery and natural coho ocean recruit forecast for the Puget Sound region of is 859,800, compared to a 2013 forecast of 882,100. The hatchery coho forecast is 378,600 compared to the 2013 forecast of 417,200, and the natural coho forecast for 2014 of 481,200 is much higher than the 2012 forecast of 464,900.

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 hatchery forecasts were based on applying hatchery-specific marine survival rate predictions) to the 2011 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 Backwards FRAM run reconstruction indicated a tendency to under-predict actual run-size in recent years (Table III-4; Figure III-1b). The 2012 preseason forecast underestimated the postseason estimate by a factor of 0.93.

### *Stock Forecasts and Status*

The 2013 forecasts for Strait of Juan de Fuca natural and hatchery coho age-3 ocean recruits are 12,500 and 17,300, respectively.

The preseason forecast of 12,538 age-3 ocean recruits places Strait of Juan de Fuca natural coho in the Low abundance based status category, which results in an allowable total exploitation rate of no more than 40 percent under both the Council adopted exploitation rate matrix (Appendix A, Table A-5) the 2002 PST Southern Coho Management Plan (Table III-5).

### *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  $S_{OFL} = 12,538 \times (1-0.60) = 5,015$ . 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 that ranged from 6 percent to 9 percent.

The hatchery forecasts are based on a long term median marine survival rate of 1.6 percent (Lummi Bay Hatchery) or 3.3 percent (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 2013 forecasts for Nooksack-Samish natural and hatchery coho ocean recruits are 20,751 and 61,687 respectively.

## **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 7.98 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 odd year (1997-2009) brood years produced an average marine survival rate of 5.0 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 Backwards FRAM run reconstruction indicated a tendency to over-predict actual run-size, especially early in the time series (Table III-4; Figure III-1b). However, the 2012 preseason forecast was far exceeded by the postseason estimate by a factor of 0.34.

### *Stock Forecasts and Status*

The 2014 forecasts for Skagit River natural and hatchery coho ocean recruits are 112,444 and 15,805 respectively.

The preseason forecast of 112,444 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  $S_{OFL} = 112,444 \times (1-0.60) = 44,978$ . 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 upon an adjusted smolt trap catch per unit effort (CPUE) regressed against adult terminal returns, for brood years 1999-2009. To capture the variability of marine survival, the CPUE was adjusted with South Fork Skykomish River natural coho marine survival observations. The resulting terminal runsize 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 Backwards FRAM run reconstruction indicated a tendency to over-predict actual run-size (Table III-4; Figure III-1b). However, the 2012 preseason forecast under predicted the postseason estimate by a factor of 0.75.

### *Stock Forecasts and Status*

The preseason forecast of 32,453 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  $S_{OFL} = 32,453 \times (1-0.50) = 16,226$ . The preseason  $S_{OFL}$  value will be recalculated with postseason abundance estimates (when available) to assess OFL compliance.

### **Snohomish**

The natural coho forecast used the estimated 2011 brood year smolt production multiplied by a 10 percent marine survival rate expectation.

The hatchery forecasts were based on brood year 2011 releases multiplied by a marine survival rate..

### *Predictor Performance*

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from Backwards FRAM run reconstruction indicated no persistent tendency to under- or over- predict abundance (Table III-4; Figure III-1b) . The 2012 forecast was lower than the postseason estimate by a factor of 0.57.

### *Stock Forecasts and Status*

The 2014 forecast for Snohomish River natural coho ocean recruits is 150,000. The Snohomish regional hatchery coho forecast is 78,200.

The preseason forecast of 150,000 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  $S_{OFL} = 150,000 \times (1-0.60) = 60,000$ . 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 2002-2009. 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 2004-2009 broods from each facility, applied to the 2011 brood smolt releases for each facility. The December age-2 marine survival rates used for these forecasts were 9.3 percent for George Adams Hatchery, 4.7 percent for Port Gamble Net Pens, 13.0 percent for the Quilcene National Fish Hatchery, and 4.7 percent for the Quilcene Bay Net Pens.

### *Predictor Performance*

A comparison of preseason ocean age-3 forecasts with postseason estimates derived from Backwards FRAM run reconstruction indicated no persistent tendency to under- or over- predict abundance in recent years. The 2012 forecast was slightly lower than the postseason estimate by a factor of 0.87 (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 47,605 and 82,750 respectively.

The preseason forecast of 47,605 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  $S_{OFL} = 47,605 \times (1 - 0.65) = 16,662$ . 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 4.84% was based upon a 9 year (2005 – 2013) of Lake Washington natural smolts of. The deep South Sound stocks' marine survival prediction of 6% came from a different years average for Lake Washington natural smolts. Was not provided

Almost all the hatchery coho forecasts used a 6 year average from either Soos Creek Hatchery (3.92%) or Peale Pass net pens (2.27%) both for the years 2004 – 2009.

### *Stock Forecasts and Status*

The 2014 preseason forecast of age-3 ocean recruits for South Sound region natural and hatchery coho are 62,786 and 150,748 respectively.

## **STOCK STATUS DETERMINATION UPDATES**

The exploitation rate on Hood Canal coho exceeded the maximum fishing mortality threshold of 0.65 in 2012. They were thus subject to overfishing. However, no stocks were classified as overfished, or met the criteria for approaching an overfished condition in 2014 (Table V-4). Status determination criteria for Willapa Bay coho have not yet been identified, so the status of this stock relative to these criteria cannot be assessed.

## *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 similar to 2013 projections. Table III-6 summarizes projected 2014 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 2)

Stock	Year	Preseason	Postseason <sup>a/</sup>	Preseason/Postseason <sup>a/</sup>
<b>Oregon Production Index Area Hatchery Total<sup>b/</sup></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	-	-	
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	-	-	
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	-	-	

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 <sup>a/</sup>	Preseason/Postseason <sup>a/</sup>
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	-	-	
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	-	-	
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	-	-	

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 <sup>a/</sup>	Preseason/Postseason <sup>a/</sup>
<b>Oregon Coast Natural</b>	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	-	-
<b>Salmon Trout Enhancement Program<sup>c/</sup></b>	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.<sup>a/</sup>

Year or Avg.	Oregon and California Coastal Returns							Ocean
	Ocean Fisheries <sup>b/</sup>		Hatcheries and			Columbia River	Abundance <sup>e/</sup>	Exploitation Rate Based on OPI
	Troll	Sport	Freshwater Harvest <sup>c/</sup>	OCN Spawners <sup>d/</sup>	Private Hatcheries	Returns	Abundance <sup>f/</sup>	
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	197.2	-	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	286.5	-	470.8	848.4	0.06
2011	4.2	54.7	20.0	360.2	-	383.2	836.4	0.07
2012	4.7	45.5	18.5	104.6	-	143.9	311.3	0.16
2013 <sup>g/</sup>	8.4	54.4	21.1	120.6	-	243.2	452.1	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
	<b>Quillayute River Fall</b>			<b>Hoh River</b>			<b>Queets River</b>			<b>Grays Harbor<sup>a/</sup></b>		
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	7.7	1.86	37.2	6.2	6.00	150.2	104.0	1.44
2013	33.4	NA	NA	8.6	NA	NA	24.5	NA	NA	196.8	NA	NA
2014	18.4	-	-	8.9	-	-	10.3	-	-	108.8	-	-

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	Postseason	Pre/Postseason	Preseason	Postseason	Pre/Postseason	Preseason	Postseason	Pre/Postseason
	Forecast <sup>b/</sup>	Return		Forecast	Return		Forecast	Return	
	<b>Skagit River</b>			<b>Stillaguamish River</b>			<b>Hood Canal</b>		
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	NA	NA	33.1	NA	NA	36.8	NA	NA
2014	112.4			39.9			47.6		

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

Year	Preseason	Postseason	Pre/Postseason	Preseason	Postseason	Pre/Postseason
	Forecast	Return		Forecast	Return	
	<b>Snohomish</b>			<b>Strait of Juan de Fuca</b>		
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	NA	NA	12.6	NA	NA
2014	150.0			12.5		

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

b/ Preseason forecasts in 1986-1996 were based on accounting system that significantly 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.

<b>FMP</b>		
FMP Stock	Total Exploitation Rate Constraint <sup>a/</sup>	Categorical Status <sup>a/</sup>
Skagit	60%	normal
Stillaguamish	50%	normal
Snohomish	60%	normal
Hood Canal	65%	normal
Strait of Juan de Fuca	40%	low
Quillayute Fall	59%	
Hoh	65%	
Queets	65%	
Grays Harbor	65%	

<b>PST Southern Coho Management Plan</b>		
U.S. Management Unit	Total Exploitation Rate Constraint <sup>b/</sup>	Categorical Status <sup>c/</sup>
Skagit	60%	Abundant
Stillaguamish	50%	Abundant
Snohomish	60%	Abundant
Hood Canal	65%	Abundant
Strait of Juan de Fuca	40%	Moderate
Quillayute Fall <sup>c/</sup>		Moderate
Hoh <sup>c/</sup>		Abundant
Queets <sup>c/</sup>		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 pre-season 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 2014 fisheries under base period fishing patterns (percent marked).

Area	Fishery	June	July	August	Sept
Canada					
Johnstone Strait	Recreational	-	26%	20%	-
West Coast Vancouver Island	Recreational	45%	23%	20%	19%
North Georgia Strait	Recreational	41%	42%	42%	37%
South Georgia Strait	Recreational	40%	48%	41%	42%
Juan de Fuca Strait	Recreational	46%	46%	47%	42%
Johnstone Strait	Troll	49%	37%	26%	29%
NW Vancouver Island	Troll	32%	29%	29%	32%
SW Vancouver Island	Troll	44%	41%	43%	45%
Georgia Strait	Troll	50%	49%	51%	45%
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	59%	50%	49%	49%
Strait of Juan de Fuca (Area 6)	Recreational	56%	47%	49%	45%
San Juan Island (Area 7)	Recreational	33%	48%	46%	36%
North Puget Sound (Areas 6 & 7A)	Net	-	51%	45%	42%
Council Area					
Neah Bay (Area 4/4B)	Recreational	40%	56%	51%	58%
LaPush (Area 3)	Recreational	65%	60%	66%	42%
Westport (Area 2)	Recreational	72%	70%	67%	62%
Columbia River (Area 1)	Recreational	78%	77%	73%	75%
Tillamook	Recreational	70%	65%	60%	48%
Newport	Recreational	66%	61%	58%	43%
Coos Bay	Recreational	57%	53%	41%	27%
Brookings	Recreational	51%	37%	32%	10%
Neah Bay (Area 4/4B)	Troll	51%	51%	53%	56%
LaPush (Area 3)	Troll	52%	58%	54%	55%
Westport (Area 2)	Troll	56%	60%	65%	60%
Columbia River (Area 1)	Troll	72%	72%	69%	69%
Tillamook	Troll	65%	63%	64%	60%
Newport	Troll	63%	61%	58%	57%
Coos Bay	Troll	56%	53%	47%	32%
Brookings	Troll	43%	45%	48%	63%
Columbia River					
Buoy 10	Recreational	-	-	-	74%

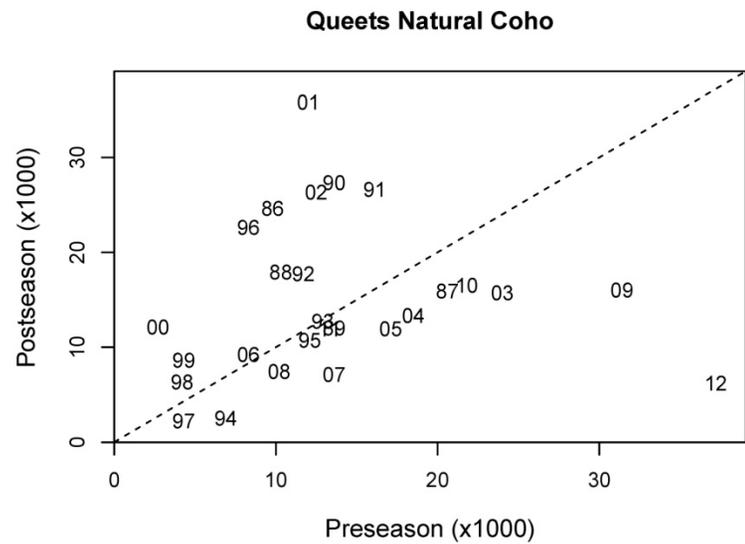
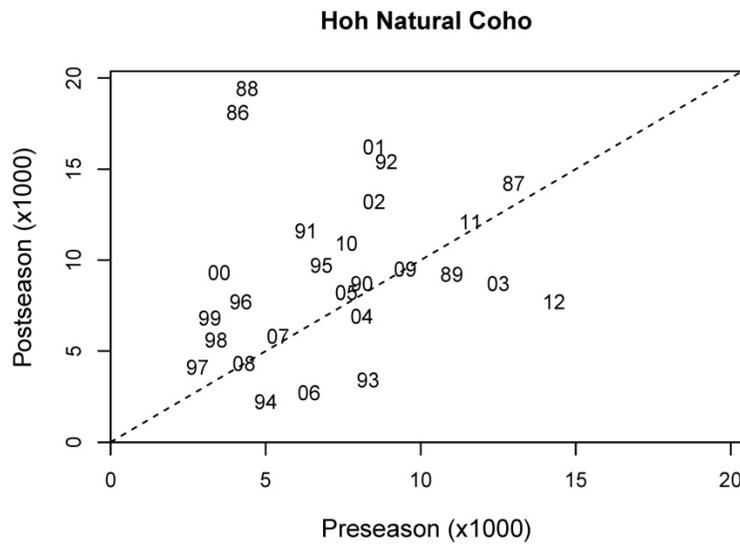
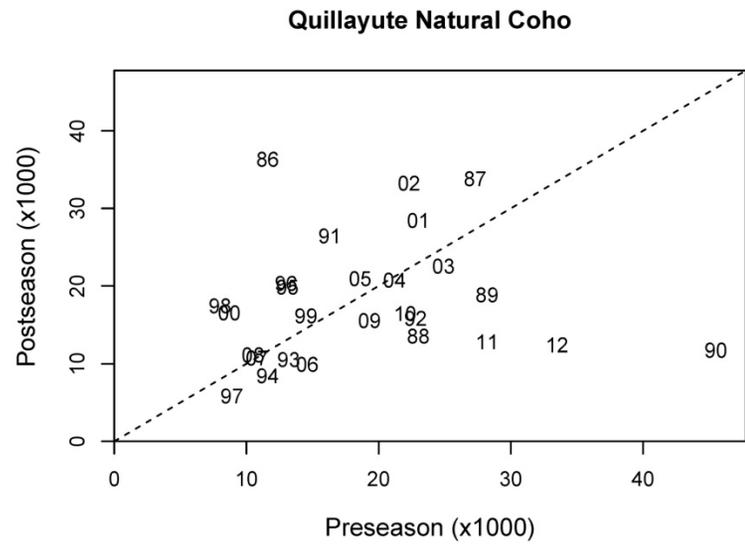
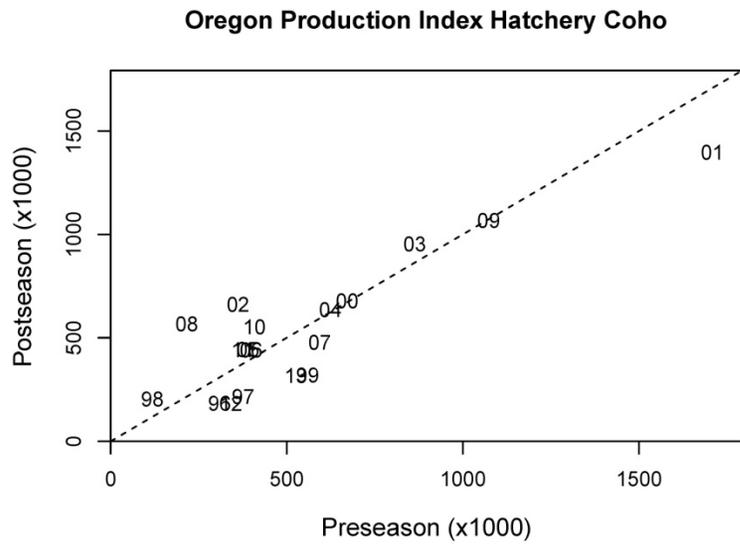


FIGURE III-1a. Selected preseason vs. postseason forecasts for coho stocks with substantial contribution to Council area fisheries.

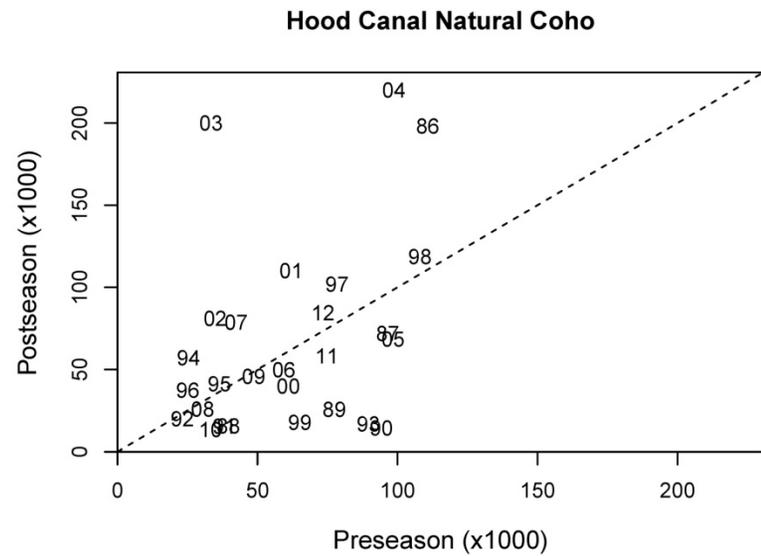
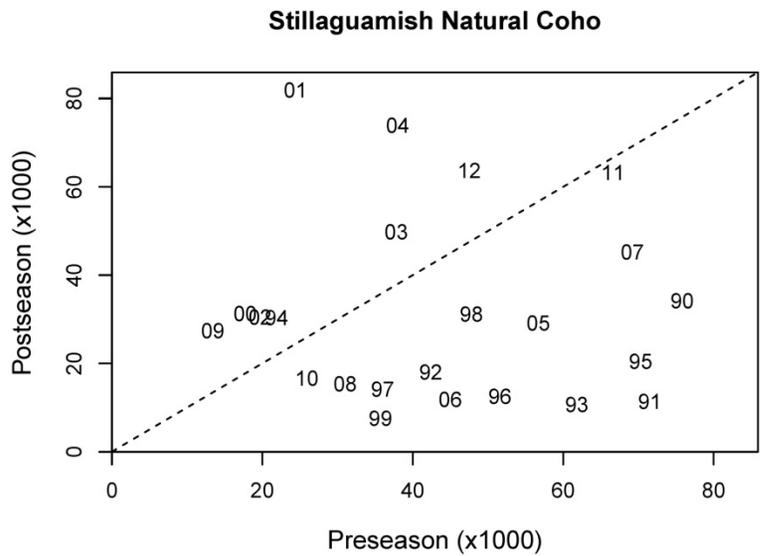
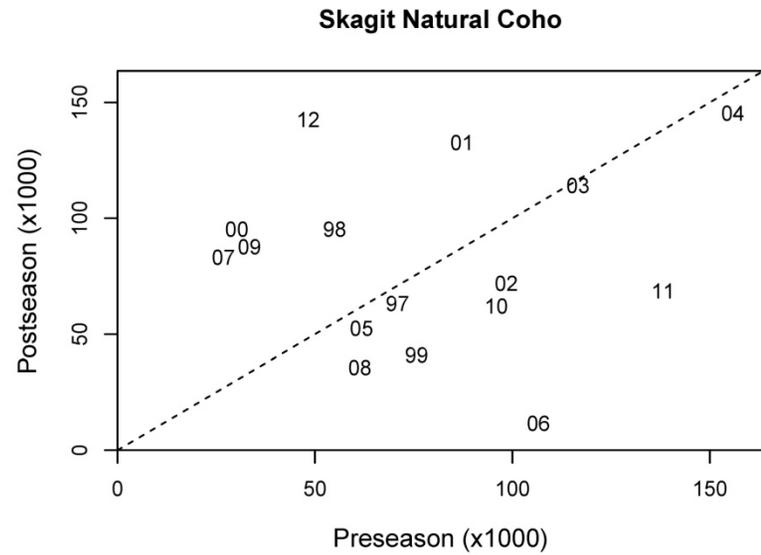
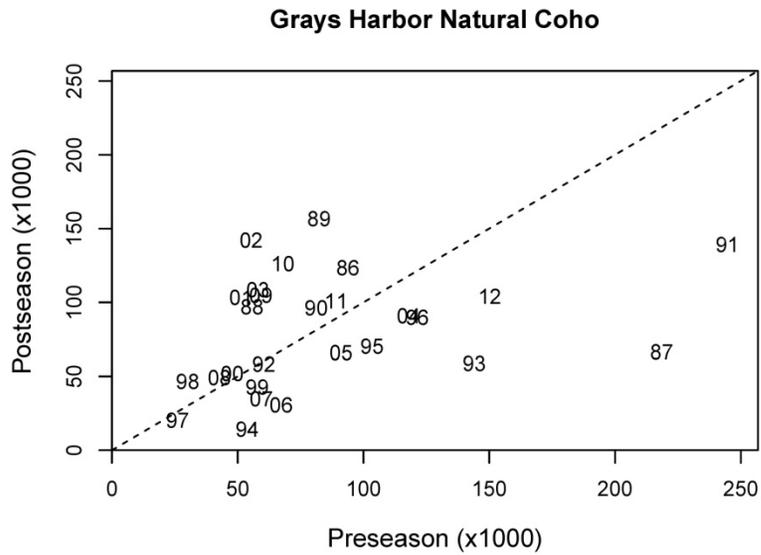


FIGURE III-1b. Selected preseason vs. postseason forecasts for coho stocks with substantial contribution to Council area fisheries.

## 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 2013 run size forecast for Fraser pinks was 8.93 million fish; the actual run size was estimated at 15.9 million. The 2013 Puget Sound pink salmon run size forecast was 6.27 million. The actual run size estimate for 2013 was about 10.0 million fish. Because pink salmon are not available to Council fisheries during an even-numbered year, they are 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.

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 <sup>b/</sup>	6.27	10.00	8.93	15.90

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## CHAPTER V: DESCRIPTION AND ANALYSIS OF THE NO ACTION ALTERNATIVE

### *DESCRIPTION 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 2013 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 2013 preseason management measures and analyses of their projected effects on the biological and socioeconomic environment are presented in Preseason Report III (PFMC 2013b). A description of the 2013 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 2013 Ocean Salmon Fisheries (PFMC 2014).

### *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 2014 under the No-Action Alternative (2013 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 2013 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 2014 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 2013 were updated for Washington and Oregon stocks, but forecasts for Canadian stocks are unchanged from those employed for 2012 planning. Updated forecasts for Canadian stocks are expected to become available in March 2014. To provide information on the effect of changes in abundance forecasts, the final 2012 pre-season regulatory package for ocean and inside fisheries was applied to 2013 projections of abundance.

#### **Sacramento River Fall Chinook**

A repeat of 2013 regulations would be expected to result in an escapement of 328,567 natural-area and hatchery SRFC adults, which is well above the 122,000 to 180,000 natural area and hatchery adult escapement goal range, and exceeds the 2014 preseason  $S_{ACL}$  of 190,395 (Tables V-4 and V-5). The geometric mean of the 2012 and 2013 spawning escapement estimates, and the 2014 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); **therefore, under the No-Action Alternative, the stock would not be experiencing overfishing.**

The 2013 estimate of SRFC escapement was 404,666, which exceeds the 2013 postseason  $S_{ACL}$  of 258,758 (Table V-5).

### **Sacramento River Winter Chinook**

A repeat of 2013 regulations would be expected to result in an age-3 impact rate of 13.2 percent for the area south of Point Arena. The 2014 forecast age-3 impact rate under the No-Action Alternative is lower than the 2014 maximum allowable rate of 15.4 percent.

### **Klamath River Fall Chinook**

A repeat of 2013 fishery regulations, which included a river recreational harvest allocation of 35 percent of the non-tribal harvest and a tribal allocation of 50 percent of the overall adult harvest, would be expected to result in 19,218 natural-area adult spawners. This projection is lower than the  $S_{MSY}$  of 40,700 natural area adults and the 2014 preseason  $S_{ACL}$  of 24,625 (Tables V-4 and V-5). The geometric mean of the 2012 and 2013 natural-area adult spawner escapement estimates, and the 2014 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 0.75, which exceeds the MFMT (Table V-4); **therefore, under the No-Action Alternative, the stock would experience overfishing.**

The inability to meet  $S_{ACL}$  and MFMT benchmarks with a repeat of the 2013 fishing regulations is partly a result of the large recreational river fishery allocation. This sizable allocation was made possible by a large 2013 abundance forecast and constraints to ocean fisheries that resulted in a large run size projection. Under a more typical river recreational allocation of 15 percent of the non-tribal harvest, the expected natural-area escapement would be 33,890 adults and the exploitation rate would be 0.56. If the ocean fisheries were closed from January through August 2014 between Cape Falcon and Point Sur, and the Klamath River fisheries (tribal and recreational) were closed in 2014, the expected number of natural area adult spawners would be 75,256.

The 2013 estimate of KRFC escapement was 59,618 natural-area adults, which exceeds the 2013 postseason  $S_{ACL}$  of 53,068 (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 2013 is 19.6 percent. Applying 2013 regulations to the 2014 KRFC abundance results in an age-4 ocean harvest rate forecast of 19.4 percent. If the ocean fisheries were closed from January through August 2014 between Cape Falcon and Point Sur, the expected age-4 ocean harvest rate for 2014 would be 2.7 percent (1,835 age-4 KRFC were harvested during the September through November 2013 period).

### **Oregon Coast Chinook Stocks**

The FMP conservation objective for Oregon coast Chinook is based on a total coast goal of 150,000 to 200,000 natural adult spawners. For the two stock complexes, northern and central coast, and southern coast, attainment of goals are assessed using peak spawner counts observed in standard index reaches for the respective complexes. No forecasts are available for these stocks, but given recent trends, it seems likely that escapement goals would be met again in 2014 under 2013 fishing seasons.

## **Columbia River Chinook Stocks**

The 2014 forecasts are substantially higher than the 2013 forecasts for all the Columbia River fall Chinook stocks. The 2014 forecast for summer Chinook is to similar to the favorable forecast in 2013. Applying 2013 regulations to the forecasted 2014 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 2013 Council area management measures on projected 2014 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 2013 Council regulations and 2014 expectations for non-Council area fisheries. Under this scenario, expected exploitation rates are 16.5 percent on OCN coho and 6.5 percent on Rogue/Klamath hatchery coho. Expected ocean escapement is 209,300 for OCN coho (Table V-6). For Columbia River hatchery coho stocks, the predicted ocean exploitation rate (excluding Buoy 10) is 14.4 percent on the Columbia River early stock and 18.1 percent on the Columbia River late stock. Predicted ocean escapements (after Buoy 10) into the Columbia River in 2014 under this exercise show that under 2013 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 2014 fisheries is no greater than 30.0 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 2013 fishery regulations and 2014 abundance forecasts, these exploitation rates are predicted to be 16.5 percent for OCN, and 6.5 percent for RK coho (Table V-7). The 2014 allowable LCN coho exploitation rate is 22.5 percent in the marine area and mainstem Columbia River fisheries combined pending NMFS ESA guidance. Under 2013 fishery regulations and 2014 abundance forecasts, the exploitation rate is predicted to be 7.0 percent for marine fisheries (excluding the Buoy 10 fishery) using combined unmarked Columbia River hatchery stocks as the proxy. Given the 2013 inriver sharing arrangement, the total exploitation rate on LCN coho would be 10.7 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 2014 preseason abundance forecasts and 2013 preseason projections for fishing patterns, are presented in Table V-6. The 2014 forecasts for Canadian coho stocks are not available, but are assumed to be at 2013 levels for this analysis. More detailed fishery management goals for Council area coho stocks are listed in Appendix A.

Under 2013 regulations, 2014 exploitation rates are expected to meet the allowable 2014 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. In addition, all annual management objectives for U.S. stocks subject to the PSC agreement would be met. The exploitation rate by U.S. fisheries south of the Canadian border on Interior Fraser (B.C.) coho is projected to be 9.4 percent, which is slightly under the anticipated 10.0 percent

allowable exploitation rate under the 2002 PST Coho Agreement. The Council area fisheries portion would be 3.9percent.

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

## Summary

The effects of projected impacts (where available) under 2013 fishery regulations and 2014 abundance forecasts are as follows:

- All stocks with available information would achieve  $S_{MSY}$  spawning escapement objectives except KRFC. The 2010-2012 3-year geometric mean escapements for spring/summer Chinook in Quillayute, Queets and the Hoh rivers are all below  $S_{MSY}$ , but above the MSST, therefore, these stocks would not be overfished (overfished is defined as the 3-year geometric mean escapement exceeding MSST).
- SRFC hatchery and natural-area adult escapement would exceed the preseason  $S_{ACL}$ .
- KRFC natural-area adult escapement would fall short of the preseason  $S_{ACL}$  and  $S_{OFL}$  which is partly a result of the large recreational river fishery allocation in 2013 and a lower preseason ocean abundance forecast for 2014 relative to 2013.
- The KRFC age-4 ocean harvest rate would exceed the California Coastal Chinook ESA consultation standard.
- All stocks would have projected exploitation rates less than MFMT or ESA consultation standards except KRFC and California Coastal Chinook. KRFC would be experiencing overfishing (overfishing is defined as the exploitation rate ( $F_T$ ) exceeding MFMT).
- 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.
- All Washington Coast coho would have exploitation rates less than the annual rates allowed under the PST 2002 Southern Coho Management Plan.
- 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

- KRFC would not comply with 2014 preseason ACL requirements and has a projected exploitation rate that exceeds both the MFMT and the maximum allowable rate specified by the control rule.
- California Coastal Chinook would not comply with its consultation standard that specifies a maximum predicted KRFC age-4 ocean harvest rate of 0.16.

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 2014 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, 2013.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<b>North of Cape Falcon</b>
<b>Supplemental Management Information</b>
<p>1. Overall non-Indian TAC: 92,000 (non-mark-selective equivalent of 88,000) Chinook and 89,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 44,000 Chinook and 14,220 marked coho.</p>
<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• May 1 through earlier of June 30 or 29,300 Chinook, no more than 8,700 of which may be caught in the area between the U.S./Canada border and the Queets River.</li> </ul> <p>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. Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.4, C.5, C.6). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). An inseason conference call will occur when it is projected that 21,975 Chinook have been landed overall, or 6,525 Chinook have been landed in the area between the U.S./Canada border and the Queets River, to consider modifying the open period to five days per week and adding landing and possession limits to ensure the guideline is not exceeded. 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 <a href="mailto:nfalcon.trollreport@state.or.us">nfalcon.trollreport@state.or.us</a>. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8).</p>
<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• July 1 through earlier of September 17 or attainment of the quota of 14,700 Chinook, no more than 6,100 of which may be caught in the area between the U.S./Canada border and the Queets River, or 14,220 marked coho (C.8.d).</li> </ul> <p>July 1-9 then Friday through Tuesday July 12-August 27 <b>with a landing and possession limit of 50 Chinook and 40 coho per vessel per open period</b>; Friday through Tuesday August 30-September 17 <b>with a landing and possession limit of 20 Chinook and 50 coho per vessel per open period</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, 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. 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, <b>and beginning August 9, Grays Harbor Control Zone closed</b> (C.5). Vessels must land and deliver their fish within 24 hours of any closure of this fishery. <b>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</b>, 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 <a href="mailto:nfalcon.trollreport@state.or.us">nfalcon.trollreport@state.or.us</a>. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts.</p>

TABLE V-1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2013.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<b>South of Cape Falcon</b>
<b>Supplemental Management Information</b>
<p>1. Sacramento River fall Chinook spawning escapement of 462,563 adults.                      2. Sacramento Index exploitation rate of 44.6%.                      3. Klamath River recreational fishery allocation: 40,006 adult Klamath River fall Chinook.                      4. Klamath tribal allocation: 114,828 adult Klamath River fall Chinook.</p>
<p><b>Cape Falcon to Humbug Mountain</b></p> <ul style="list-style-type: none"> <li>• April 1-August 29;</li> <li>• September 4-October 31 (C.9.a).</li> </ul> <p>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 compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay.</p> <p>Beginning September 4, no more than 100 Chinook per vessel per landing week (Wed.-Tues.).</p> <p>In 2014, the season will open March 15 for all salmon except coho. Chinook minimum size limit of 28 inches total length (C.1) Gear restrictions same as in 2013. This opening could be modified following Council review at its March 2014 meeting.</p>
<p><b>Humbug Mountain to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• April 1-May 31;</li> <li>• June 1 through earlier of June 30, or a 4,000 Chinook quota;</li> <li>• July 1 through earlier of July 31, or a 3,000 Chinook quota;</li> <li>• August 1 through earlier of August 29, or a 2,000 Chinook quota;</li> <li>• September 16 through earlier of September 27 or a 1,000 Chinook quota (C.9.a).</li> </ul> <p>Seven days per week. All salmon except coho (C.4, C.7). Chinook minimum size limit of 28 inches total length (B, C.1). <b>Prior to June 1, all fish caught in this area must be landed and delivered in the State of Oregon.</b> June 1 – August 29 landing and possession limit of 30 Chinook per vessel per day. September 16-27 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. 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).</p> <p>In 2014, the season will open March 15 for all salmon except coho, with a 28 inch Chinook minimum size limit. (C.1) Gear restrictions same as in 2013. This opening could be modified following Council review at its March 2014 meeting.</p>
<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• May 1 through earlier of May 31, or a 3,000 Chinook quota;</li> <li>• June 1 through earlier of June 30, or a 3,000 Chinook quota;</li> <li>• July 15 through earlier of July 31, or a 2,000 Chinook quota;</li> <li>• August 1 through earlier of August 29, or a 1,500 Chinook quota;</li> <li>• September 16 through earlier of September 30, or 6,000 Chinook quota (C.9.b).</li> </ul> <p>Seven days per week. 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). 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). 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.).</p>
<p><b>Humboldt South Jetty to Horse Mountain</b>                      Closed.</p>

TABLE V-1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2013.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>	
<p><b>Horse Mountain to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• May 22-31;</li> <li>• June 1-8 and 21-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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 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).</p> <p>In 2014, 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 2013. All fish caught in the area must be landed in the area. This opening could be modified following Council review at its March 2014 meeting.</p>	
<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 1-8 and 21-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p> <p><b>Point Reyes to Point San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• October 1-4, 7-11, and 14-15.</li> </ul> <p>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).</p>	
<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 1-8 and 21-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p> <p>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)</p>	

**B. MINIMUM SIZE (Inches)**

Area (when open)	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
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	27.0	20.5	-	-	None
Horse Mountain to Point Arena	27.0	20.5	-	-	None
Point Arena to U.S./Mexico Border					
Prior to September 1	27.0	20.5	-	-	None
September 1 to October 15	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 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.

States may require fish landing/receiving tickets be kept on board the vessel for 90 days 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 90° angle.

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

- a. Except as provided under C.4.b below, it is unlawful for a vessel to have troll or recreational gear in the water while in any area closed to fishing for a certain species of salmon, while possessing that species of salmon; however, fishing for species other than salmon is not prohibited if the area is open for such species, and no salmon are in possession.
- b. When Genetic Stock Identification (GSI) samples will be collected in an area closed to commercial salmon fishing, the scientific research permit holder shall notify NOAA OLE, USCG, CDFW 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 (48°23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48°10'00" N. lat.) and east of 125°05'00" W. long.
- b. *Mandatory Yelloweye Rockfish Conservation Area* - The area in Washington Marine Catch Area 3 from 48°00.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°16.50' W. long. to 48°00.00' N. lat.; 125°16.50' W. long. and connecting back to 48°00.00' N. lat.; 125°14.00' W. long.
- c. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 55'36" N. lat., 124°10'51" W. long.).
- d. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09" N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat., 124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.
- e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately 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.

TABLE V-1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2013.  
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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. License applications for incidental harvest must be obtained from the International Pacific Halibut Commission (phone: 206-634-1838). Applicants must apply prior to April 1, 2013 for 2013 permits and mid-March 2014 (*exact date to be set by the IPHC in early 2014*) for 2014 permits. Incidental harvest is authorized only during May and June of the 2013 troll seasons and April, May, and June of the 2014 troll seasons and after June 30 in 2013 or 2014 if quota remains and if announced on the NMFS hotline (phone: 800-662-9825). WDFW, ODFW, and CDFW will monitor landings. If the landings are projected to exceed the 30,600 pound preseason allocation or the total Area 2A non-Indian commercial halibut allocation, NMFS will take inseason action to prohibit retention of halibut in the non-Indian salmon troll fishery.

Beginning May 1, 2013 through April 30, 2014, license holders may land or possess no more than one Pacific halibut per each three Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 15 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 2013 will be in effect when incidental Pacific halibut retention opens on April 1, 2014 unless otherwise modified by inseason action.

- 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 2014 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2013).
- 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 V-2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2013. (Page 1 of 4)
A. SEASON ALTERNATIVE DESCRIPTIONS
North of Cape Falcon
Supplemental Management Information
<p>1. Overall non-Indian TAC: 92,000 (non-mark-selective equivalent of 88,000) Chinook and 89,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Recreational TAC: 48,000 (non-mark selective equivalent of 44,000) Chinook and 74,760 marked coho; all retained coho must be marked.</p> <p>4. No Area 4B add-on fishery.</p> <p>5. Buoy 10 fishery opens August 1 with an expected landed catch of 13,000 marked coho in August and September.</p>
<p><b>U.S./Canada Border to Queets River</b></p> <ul style="list-style-type: none"> <li>• May 10-11, May 17-18, and June 22-28 or a coastwide <b>marked Chinook quota of 8,000</b> (C.5). Seven days per week. Two fish per day, all salmon except coho, <b>all Chinook must be marked with a healed adipose fin clip</b> (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). 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).</li> </ul>
<p><b>Queets River to Leadbetter Point</b></p> <ul style="list-style-type: none"> <li>• June 8 through earlier of June 21 or a coastwide <b>marked Chinook quota of 8,000</b> (C.5). Seven days per week. Two fish per day, all salmon except coho, <b>all Chinook must be marked with a healed adipose fin clip</b> (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). 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).</li> </ul>
<p><b>Leadbetter Point to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• June 8 through earlier of June 21 or a coastwide <b>marked Chinook quota of 8,000</b> (C.5). Seven days per week. Two fish per day, all salmon except coho, <b>all Chinook must be marked with a healed adipose fin clip</b> (C.1). Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). 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).</li> </ul>
<p><b>U.S./Canada Border to Cape Alava (Neah Bay)</b></p> <ul style="list-style-type: none"> <li>• June 29 through earlier of September 22 or 7,780 marked coho subarea quota with a subarea guideline of 4,900 Chinook (C.5). Seven days per week. All salmon except no chum beginning August 1; two fish per day, plus two additional pink salmon. 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).</li> </ul>
<p><b>Cape Alava to Queets River (La Push Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 29 through earlier of September 22 or 1,890 marked coho subarea quota with a subarea guideline of 1,650 Chinook (C.5).</li> <li>• September 28 through earlier of October 13 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.</li> </ul> <p>Seven days per week. All salmon, two fish per day, plus two additional pink salmon. All coho must be marked (see <i>Ocean Boat Limits</i>, 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).</p>
<p><b>Queets River to Leadbetter Point (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 23 through earlier of September 30 or 27,660 marked coho subarea quota with a subarea guideline of 23,500 Chinook (C.5). Sunday through Thursday. 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). 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).</li> </ul>
<p><b>Leadbetter Point to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 22 through earlier of September 30 or 37,380 marked coho subarea quota with a subarea guideline of 9,900 Chinook (C.5). Seven days per week. All salmon, two fish per day, only 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). 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).</li> </ul>

TABLE V-2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2013.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<b>South of Cape Falcon</b>
<b>Supplemental Management Information</b>
<ol style="list-style-type: none"> <li>1. Sacramento River fall Chinook spawning escapement of 462,563 adults.</li> <li>2. Sacramento Index exploitation rate of 44.6%.</li> <li>3. Klamath River recreational fishery allocation: 40,006 adult Klamath River fall Chinook.</li> <li>4. Klamath tribal allocation: 114,828 adult Klamath River fall Chinook.</li> <li>5. Overall recreational TAC: 10,500 marked coho and 16,000 unmarked coho.</li> </ol>
<p><b>Cape Falcon to Humbug Mountain</b></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>Seven days per week. All salmon except coho; two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <ul style="list-style-type: none"> <li>• <b>Non-mark-selective coho fishery:</b> September 1 through the earlier of September 30 or a landed catch of 16,000 <b>non-mark-selective coho quota</b> (C.5).</li> </ul> <p>September 1-2, then Thursday through Saturday thereafter; <b>all salmon</b>, two fish per day (C.5); September 3-4, then Sunday through Wednesday thereafter; <b>all salmon except coho</b>, two fish per day. The all salmon except coho season reopens the earlier of October 1 or attainment of the coho quota. Open days may be adjusted inseason to utilize the available coho quota (C.5).</p> <p>In 2014, 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). This opening could be modified following Council review at its March 2014 meeting.</p> <p>Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).</p>
<p><b>Cape Falcon to OR/CA Border</b></p> <ul style="list-style-type: none"> <li>• <b>All-salmon mark-selective coho fishery:</b> July 1 through earlier of July 31 or a landed catch of 10,500 marked coho.</li> </ul> <p>Seven days per week. All salmon, two fish per day. All retained coho must be marked (C.1). 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.</p> <p>Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).</p>
<p><b>Humbug Mountain to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• May 1 through September 8 except as provided above during the all-salmon mark-selective coho fishery (C.6).</li> </ul> <p>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).</p>
<p><b>OR/CA Border to Horse Mountain (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• May 1 through September 8 (C.6).</li> </ul> <p>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.</p>
<p><b>Horse Mountain to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• April 6 through November 10.</li> </ul> <p>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).</p> <p>In 2014, season opens April 5 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 2013 (C.2, C.3). This opening could be modified following Council review at its March 2014 meeting.</p>

TABLE V-2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2013.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>April 6 through November 10</li> </ul> <p>Open five days per week (Weds.-Sun.) June 1 through July 9, seven days per week otherwise. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through July 31; 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 2014, season opens April 5 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 2013 (C.2, C.3). This opening could be modified following Council review at its March 2014 meeting.</p>
<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>April 6 through October 6.</li> </ul> <p>Open five days per week (Weds.-Sun.) June 1 through July 9, seven days per week otherwise. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 2014, season opens April 5 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 2013 (C.2, C.3). This opening could be modified following Council review at its March 2014 meeting.</p>

<b>B. MINIMUM SIZE (Inches) (See C.1)</b>			
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)			
Area (when open)	Chinook	Coho	Pink
North of Cape Falcon	24.0	16.0	None
Cape Falcon to Humbug Mountain	24.0	16.0	None
Humbug Mountain to OR/CA Border	24.0	16.0	None
OR/CA Border to Horse Mountain	20.0	-	20.0
Horse Mountain to Point Arena	20.0	-	20.0
Point Arena to Pigeon Point:			
Through July 31	24.0	-	24.0
After July 31	20.0	-	20.0
Pigeon Point to U.S./Mexico Border:	24.0	-	24.0

<b>C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS</b>
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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.

*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 Point 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 Mountain, California, to Point 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, 2013.  
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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 Point 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 Point (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 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 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 July Cape Falcon to OR/CA border recreational coho quota may be transferred inseason to the September Cape Falcon to Humbug Mountain 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, 2013.  
(Page 1 of 1)

<b>A. SEASON DESCRIPTIONS</b>
<b>Supplemental Management Information</b>
1. Overall Treaty-Indian TAC: 52,500 Chinook and 47,500 coho.
<ul style="list-style-type: none"> <li>May 1 through the earlier of June 30 or 26,250 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish may be transferred into the later all-salmon season (C.5.a). 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).</li> <li>July 1 through the earlier of September 15, or 26,250 preseason Chinook quota (C.5), or 47,500 coho quota. All Salmon. See size limit (B) and other restrictions (C).</li> </ul>

<b>B. MINIMUM SIZE (Inches)</b>					
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 2004-2012. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2013 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). 2014 spawning escapement and exploitation rate estimates are based on preliminary 2014 pre-season abundance forecasts and 2013 Council regulations.

	Spawning Escapement								Total Exploitation Rate					
	2010	2011	2012	2013 <sup>a/</sup>	Forecast 2014 <sup>b/</sup>	3-yr Geo Mean	MSST	S <sub>MSY</sub>	2010	2011	2012	2013 <sup>a/</sup>	2014 <sup>b/</sup>	MFMT
<b>Chinook</b>														
Sacramento Fall	124,270	119,342	285,429	404,666	328,567	336,052	91,500	122,000	0.17	0.42	0.54	0.53	0.48	0.78
Klamath River Fall	37,225	46,765	118,047	59,618	19,218	51,331	30,525	40,700	0.42	0.38	0.46	0.64	<b>0.75</b>	0.71
Southern Oregon <sup>c/</sup>	52	35	39	23	NA	NA	30	150,000 to 200,000	NA	NA	NA	NA	NA	0.78
Central and Northern	87	109	146	189	NA	NA	fish/mile		0.69	0.60	NA	NA	NA	0.78
Upper River Bright - Fall <sup>d/</sup>	114,230	93,510	94,925	344,611	533,811	259,437	19,182	39,625	0.42	0.60	NA	NA	NA	0.86
Upper River - Summer <sup>d/</sup>	47,220	44,432	52,184	68,380	68,000	62,372	6,072	12,143	0.55	0.62	NA	NA	NA	0.75
Willapa Bay - Fall <sup>e/</sup>	3,395	3,119	2,158	NA	NA	NA	1,696	3,393	0.64	0.64	NA	NA	NA	0.78
Grays Harbor Fall <sup>e/</sup>	16,951	20,317	11,969	NA	NA	NA	5,694	11,388	0.64	0.64	NA	NA	NA	0.78
Grays Harbor Spring	3,495	2,563	878	NA	NA	NA	546	1,092	NA	NA	NA	NA	NA	0.78
Queets - Fall <sup>d/</sup>	4,031	3,857	3,707	3,706	NA	NA	1,250	2,500	0.64	0.64	NA	NA	NA	0.87
Queets - Sp/Su	259	373	760	518	NA	NA	350	700	NA	NA	NA	NA	NA	0.78
Hoh - Fall <sup>e/</sup>	2,599	1,293	1,800	1,269	NA	NA	600	1,200	0.64	0.64	NA	NA	NA	0.90
Hoh Sp/Su	828	827	915	750	NA	NA	450	900	NA	NA	NA	NA	NA	0.78
Quillayute - Fall <sup>e/</sup>	4,635	3,963	3,518	4,017	NA	NA	1,500	3,000	0.64	0.64	NA	NA	NA	0.87
Quillayute - Sp/Su	772	569	729	948	NA	NA	600	1,200	NA	NA	NA	NA	NA	0.78
Hoko -Su/Fa <sup>d/</sup>	793	1,504	1,086	1,091	NA	NA	425	850	0.12	0.16	NA	NA	NA	0.78
<b>Coho</b>														
Willapa Bay	84,565	26,122	20,024	NA	NA	NA	Undef	Undef	0.27	0.46	0.32	NA	NA	Undef
Grays Harbor	102,237	64,403	66,836	77,825	98,687	80,069	18,320	24,426	0.22	0.42	0.45	NA	0.50	0.65
Queets	11,261	8,588	4,285	6,062	8,317	6,000	4,350	5,800	0.42	0.36	0.31	NA	0.61	0.65
Hoh	7,864	8,043	4,179	2,899	7,795	4,554	1,890	2,520	0.33	0.39	0.47	NA	0.49	0.65
Quillayute Fall	9,837	8,070	5,846	7,063	17,222	8,926	4,725	6,300	0.43	0.42	0.53	NA	0.42	0.59
Juan de Fuca	19,282	43,042	14,951	NA	11,057	19,234	7,000	11,000	0.08	0.09	0.13	NA	0.12	0.60
Hood Canal	4,697	24,844	25,129	NA	25,739	25,235	10,750	14,350	<b>0.68</b>	0.52	<b>0.71</b>	NA	0.46	0.65
Skagit	31,090	43,042	13,817	NA	72,472	35,061	14,875	25,000	0.50	0.37	0.32	NA	0.36	0.60
Stillaguamish	15,172	49,991	5,458	NA	23,205	18,500	6,100	10,000	0.09	0.21	0.29	NA	0.29	0.50
Snohomish	49,100	111,374	17,165	NA	111,143	59,672	31,000	50,000	0.09	0.21	0.32	NA	0.26	0.60

a/ Preliminary.

b/ Preliminary approximations based on pre-season abundance projections and 2013 regulations. For an indication of stock status for stocks without a 2014 forecast of escapement, see *Review of 2013 Ocean Salmon Fisheries (PFMC 2014)*, Table II-6 and Table III-7. For coastal coho, values are ocean escapements.

c/ Spawning escapement and MSST are expressed in fish per mile. S<sub>MSY</sub> is in total number of fish.

d/ CWT based exploitation rates from annual catch and escapement distribution from PSC-CTC 2012 Exploitation Rate Analysis.

e/ Queets River fall Chinook coded-wire-tag (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.

Year	SRFC			KRFC		
	$S_{ACL}^{a/}$	$S_{OFL}$	Escapement <sup>b/</sup>	$S_{ACL}^{a/}$	$S_{OFL}$	Escapement <sup>c/</sup>
2012	187,459	137,470	285,429	69,561	63,040	118,047
2013	258,758	189,755	404,666	53,068	48,093	59,618
2014	190,395	139,623	328,567	24,625	22,316	19,218

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 2014 preseason abundance forecasts and 2013 Council management measures.<sup>a/</sup>

Stock	Ocean Escapement and ER Estimates Under 2013 Regulations <sup>b/</sup>				
	2014 Preseason		2013 Preseason		2013 FMP Conservation Objective <sup>c/</sup>
	Abundance	Exploitation Rate	Abundance	Exploitation Rate	
<b>Natural Coho Stocks</b>					
Skagit	106.8	35.8%	129.8	36.1%	Exploitation Rate $\leq 60.0\%$ <sup>d/</sup>
Stillaguamish	31.4	28.6%	31.9	27.8%	Exploitation Rate $\leq 50.0\%$ <sup>d/</sup>
Snohomish	145.1	26.0%	158.0	25.1%	Exploitation Rate $\leq 60.0\%$ <sup>d/</sup>
Hood Canal	45.0	46.0%	34.7	45.0%	Exploitation Rate $\leq 65.0\%$ <sup>d/</sup>
Strait of Juan de Fuca	12.0	12.1%	11.9	12.9%	Exploitation Rate $\leq 40.0\%$ <sup>d/</sup>
Quillayute Fall	17.2	42.4%	16.0	42.9%	6.3 - 15.8 Spawners
Hoh	7.8	49.3%	7.3	50.5%	2.0 - 5.0 Spawners
Queets	8.3	61.2%	19.3	62.2%	5.8 - 14.5 Spawners
Grays Harbor	98.7	50.1%	180.9	50.8%	35.4 Spawners
LCN	30.5	10.7%	40.7	15.0%	
OCN	209.3	16.5%	167.5	23.1%	
R/K	NA	6.5%	NA	7.3%	
<b>Hatchery Coho Stocks</b>					
Columbia Early	449.3	14.4%	275.2	22.0%	6.2 Hatchery Escapement
Columbia Late	357.6	18.1%	143.0	26.9%	14.2 Hatchery Escapement

a/ Quota levels include harvest and hooking mortality estimates used in planning the Council's 2013 ocean fisheries and a coho catch for the Canadian troll fishery off the West Coast of Vancouver Island (WCVI).

b/ 2013 preseason regulations include the following coho quota fisheries: U.S. Canada Border to Cape Falcon: Treaty Indian troll -47,500 non-selective; non-Indian troll - 14,220 selective; recreational - 74,760 selective; Cape Falcon to OR/CA border: recreational - 10,500 selective and 16,000 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 rate shown is the Council fisheries exploitation rate, which had an ER forecast of 11.0% and an ESA limit of 15% including mainstem Columbia River fisheries.

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.

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 2013 management measures and preliminary 2014 preseason abundance estimates.

Fishery	Projected Harvest Mortality and Exploitation Rate					
	LCN		OCN		RK <sup>a/</sup>	
	Number	Percent	Number	Percent	Number	Percent
<b>SOUTHEAST ALASKA</b>	0	0.0%	0	0.0%	0	0.0%
<b>BRITISH COLUMBIA</b>	30	0.1%	630	0.3%	24	0.2%
<b>PUGET SOUND/STRAITS</b>	50	0.2%	160	0.1%	0	0.0%
<b>NORTH OF CAPE FALCON</b>						
Recreational	672	2.0%	819	0.4%	2	0.0%
Treaty Indian Troll	595	1.8%	931	0.4%	0	0.0%
Non-Indian Troll	352	1.1%	719	0.3%	0	0.0%
<b>SOUTH OF CAPE FALCON</b>						
Recreational:						
Cape Falcon to Humbug Mt.	371	1.1%	9,635	4.2%	16	0.2%
Humbug Mt. to Horse Mt. (KMZ)	28	0.1%	1,306	0.6%	246	2.3%
Fort Bragg	10	0.0%	743	0.3%	114	1.1%
South of Pt. Arena	8	0.0%	563	0.2%	66	0.6%
Troll:						
Cape Falcon to Humbug Mt.	149	0.5%	1,301	0.6%	9	0.1%
Humbug Mt. to Horse Mt. (KMZ)	9	0.0%	388	0.2%	50	0.5%
Fort Bragg	11	0.0%	1,092	0.5%	116	1.1%
South of Pt. Arena	8	0.0%	510	0.2%	16	0.2%
<b>BUOY 10</b>	115	0.3%	56	0.0%	0	0.0%
<b>ESTUARY/FRESHWATER</b>	1,194	3.6%	19,335	8.4%	26	0.2%
<b>TOTAL</b>	<b>3,602</b>	<b>10.7%</b>	<b>38,188</b>	<b>16.5%</b>	<b>685</b>	<b>6.5%</b>

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.<sup>a/</sup>

Fishery Year (t)	OCN Coho Spawners by Stock Component			Marine Survival Indicator		Amendment 13 Matrix			OCN Work Group Matrix <sup>b/</sup>			
	Parent Spawner Year (t-3)	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 <sup>c/d/</sup>	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	-	-	-	Low	-	-	Low	-
2016	2013	10,600	35,000	63,900	-	-	-	Low	-	-	Low	-

a/ Under the NMFS ESA consultation standards, the southern stock component is managed for a total allowable Marine Exploitation rate of 13%, as represented by Rogue/Klamath hatchery stocks, which is separate from these OCN coho impact rates.

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

c/ 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 the natural smolt to jack relationship at Mill Creek in the Yaquina River basin.

d/ OCN workgroup matrix was modified during the 2013 methodology review. For 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**

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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<sup>a/</sup>. (Page 1 of 7)

CHINOOK					
Stocks In The Fishery	Conservation Objective	S <sub>MSY</sub>	MSST	MFMT (F <sub>MSY</sub> )	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 <sub>ABC</sub> and annual ocean abundance. F <sub>ABC</sub> is F <sub>MSY</sub> 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.	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 <sub>ABC</sub> and annual ocean abundance. F <sub>ABC</sub> is F <sub>MSY</sub> 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	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)	

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

CHINOOK						
Stocks In The Fishery	Conservation Objective	S <sub>MSY</sub>	MSST	MFMT (F <sub>MSY</sub> )	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	14,600 natural adult spawners--MSP based on full seeding of spawning and rearing habitat (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 <i>Hoh v. Baldrige</i> and subsequent U.S. District Court orders.	11,388	5,694	78% Proxy (SAC 2011a)	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)	
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<sup>a/</sup>. (Page 3 of 7)

CHINOOK					
Stocks In The Fishery	Conservation Objective	S <sub>MSY</sub>	MSST	MFMT (F <sub>MSY</sub> )	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<sup>al</sup>. (Page 4 of 7)

CHINOOK						
Stocks In The Fishery	Conservation Objective		S <sub>MSY</sub>	MSST	MFMT (F <sub>MSY</sub> )	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<sup>al</sup>. (Page 5 of 7)

COHO						
Stocks In The Fishery	Conservation Objective		S <sub>MSY</sub>	MSST	MFMT (F <sub>MSY</sub> )	ACL
			Undefined	ESA consultation standard applies	Undefined	Undefined
Central California Coast ESA Threatened	NMFS ESA consultation standard/recovery plan: No retention of coho south of the OR/CA border.	Undefined	Undefined			
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	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.					
Quinalt - Hatchery	Hatchery production.					
Quillayute - Summer Hatchery	Hatchery production.					
South Puget Sound Hatchery	Hatchery rack return goal of 52,000 adults.					
Willapa Bay Natural	Undefined	Undefined	Undefined	Undefined	Undefined	Undefined

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

COHO						
Stocks In The Fishery	Conservation Objective		S <sub>MSY</sub>	MSST	MFMT (F <sub>MSY</sub> )	ACL
Grays Harbor	35,400 natural adult spawners (MSP based on WDF [1979])		24,426 S <sub>MSP</sub> (FMP) *F <sub>SMY</sub> (SAC 2010b)	18,320 (Johnstone et al. 2011)	MFMT=65% (Johnstone et al. 2011) F <sub>MSY</sub> =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 <sub>MSY</sub> =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 <sub>MSY</sub> *0.75	MFMT=65% (Johnstone et al. 2011) F <sub>MSY</sub> =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 <sub>MSY</sub> =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<sup>a/</sup>. (Page 7 of 7)

PINK (odd-numbered years)					
Stocks In The Fishery	Conservation Objective			MFMT	ACL
		S <sub>MSY</sub>	MSST	(F <sub>MSY</sub> )	
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			
<b>High:</b>	Parent spawners achieved Level #2 rebuilding criteria; grandparent spawners achieved Level #1	$\leq 15\%$	$\leq 30\%$ <sup>a/</sup>	$\leq 35\%$ <sup>a/</sup>	
<b>Medium:</b>	Parent spawners achieved Level #1 or greater rebuilding criteria	$\leq 15\%$	$\leq 20\%$ <sup>a/</sup>	$\leq 25\%$ <sup>a/</sup>	
<b>Low:</b>	Parent spawners less than Level #1 rebuilding criteria	$\leq 15\%$ $\leq 10-13\%$ <sup>b/</sup>	$\leq 15\%$	$\leq 15\%$	
OCN Coho Spawners by Stock Component					
Rebuilding Criteria	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)				
<b>Northern:</b> (Necanicum River to Neskowin Creek)	Nehalem	Tillamook	Nestucca	Ocean Tribs.	
	17,500	2,000	1,800	400	
<b>North-Central:</b> (Salmon River to Siuslaw River)	Siletz	Yaquina	Alsea	Siuslaw	Ocean Tribs.
	4,300	7,100	15,100	22,800	5,700
<b>South-Central:</b> (Siltcoos River to Sixes River)	Umpqua	Coos	Coquille	Coastal Lakes	
	29,400	7,200	5,400	8,000	
<b>Southern:</b> (Elk River to Winchuck River)	Rogue				
	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 <sup>a/</sup>	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 )			
<b>High</b> Parent Spawners > 75% of full seeding	<b>E</b> ≤ 8%	<b>J</b> ≤ 15%	<b>O</b> ≤ 30%	<b>T</b> ≤ 45%			
<b>Medium</b> Parent Spawners > 50% & ≤ 75% of full seeding	<b>D</b> ≤ 8%	<b>I</b> ≤ 15%	<b>N</b> ≤ 20%	<b>S</b> ≤ 38%			
<b>Low</b> Parent Spawners > 19% & ≤ 50% of full seeding	<b>C</b> ≤ 8%	<b>H</b> ≤ 15%	<b>M</b> ≤ 15%	<b>R</b> ≤ 25%			
<b>Very Low</b> Parent Spawners > 4 fish per mile & ≤ 19% of full seeding	<b>B</b> ≤ 8%	<b>G</b> ≤ 11%	<b>L</b> ≤ 11%	<b>Q</b> ≤ 11%			
<b>Critical</b> <sup>b/</sup> Parental Spawners ≤ 4 fish per mile	<b>A</b> 0 - 8%	<b>F</b> 0 - 8%	<b>K</b> 0 - 8%	<b>P</b> 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 aggregate 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 subaggregates. 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-aggregate) 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 <sup>a/</sup>	Marine Survival Index <i>(Wild adult coho salmon survival as predicted by the two-variable GAM ensemble forecast)</i>						
	Extremely Low <2%	Low 2%-4.5%	Medium >4.5%-8%	High >8%			
<b>High</b> Parent Spawners > 75% of full seeding	E ≤ 8%	J ≤ 15%	O ≤ 30%	T ≤ 45%			
<b>Medium</b> Parent Spawners > 50% & ≤ 75% of full seeding	D ≤ 8%	I ≤ 15%	N ≤ 20%	S ≤ 38%			
<b>Low</b> Parent Spawners > 19% & ≤ 50% of full seeding	C ≤ 8%	H ≤ 15%	M ≤ 15%	R ≤ 25%			
<b>Very Low</b> Parent Spawners > 4 fish per mile & ≤ 19% of full seeding	B ≤ 8%	G ≤ 11%	L ≤ 11%	Q ≤ 11%			
<b>Critical</b> 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 <i>(Removed per adoption of Amendment 16)</i>							
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

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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.**

Harvest (thousands of fish)	Coho		Chinook		
	Percentage <sup>a/</sup>		Harvest (thousands of fish)	Percentage <sup>a/</sup>	
	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.<sup>a/</sup>**

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 <sup>a/</sup>					
	Columbia River	Westport	La Push	Neah Bay	Columbia River	Westport	La Push	Ocean	Neah Bay Add-on	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.<sup>a/</sup>**

Total Allowable Ocean Harvest	Recreational Allocation		Commercial Allocation	
	Number	Percentage	Number	Percentage
≤100	≤100 <sup>b/c/</sup>	100 <sup>b/</sup>	b/	b/
200	167 <sup>b/c/</sup>	84 <sup>b/</sup>	33 <sup>b/</sup>	17 <sup>b/</sup>
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

<sup>a/</sup> 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).

<sup>b/</sup> 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.

<sup>c/</sup> 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**

**SACRAMENTO RIVER WINTER CHINOOK CONTROL RULE**

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## 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 C-1, 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.

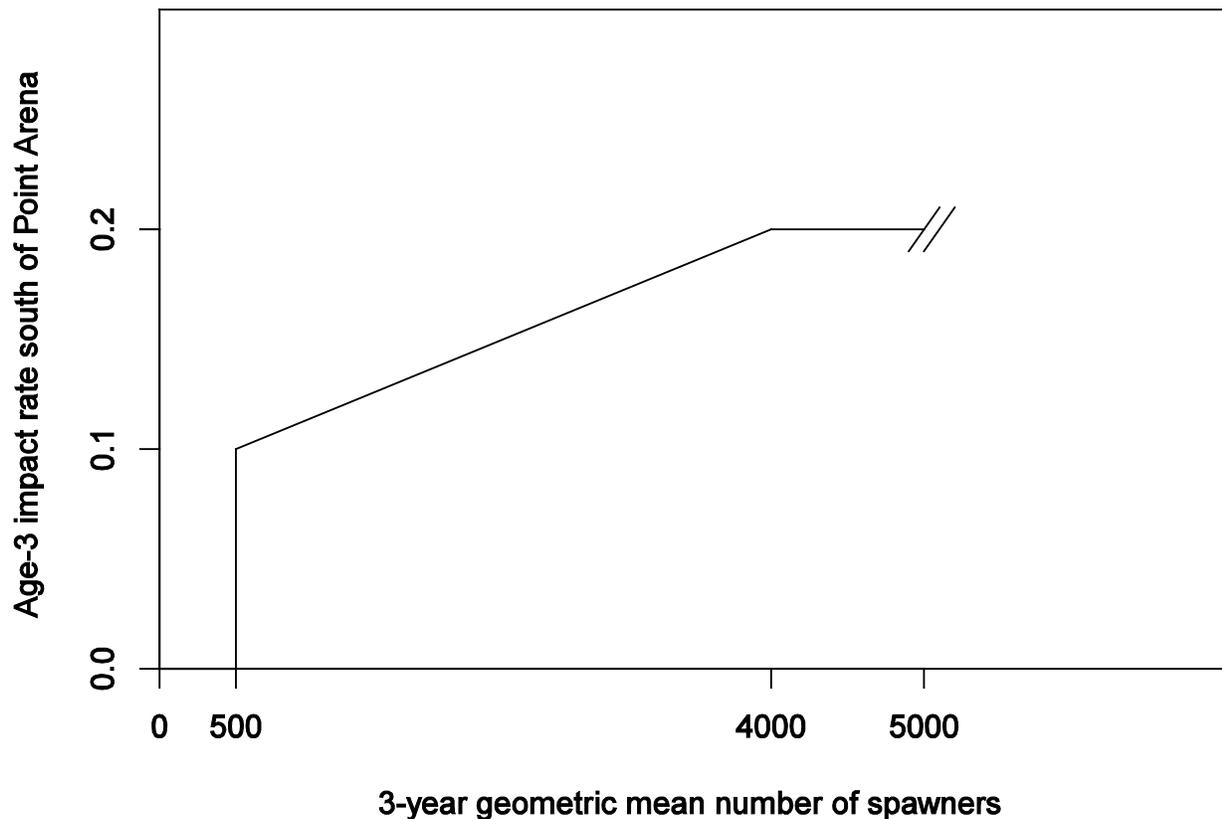


FIGURE C-1. Sacramento River winter Chinook impact rate control rule; maximum forecast age-3 impact rate for the area south of Point Arena, California, as a function of the geometric mean of escapement from the most recent three years.

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**APPENDIX D  
OREGON PRODUCTION INDEX DATA**

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TABLE D-1. Millions of coho smolts<sup>a/</sup> released annually into the OPI area by geographic area and rearing agency.

Year or Average	Columbia River					Oregon Coast					
	Oregon	Washington			Federal	Total	ODFW <sup>b/</sup>	Private 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 <sup>c/</sup>	6.0	2.0	7.8	9.8	2.9	18.6	0.4	-	0.4	0.6	19.5

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 D-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)

Year (t)	Adults (t)		Jacks (t-1)			Columbia River Smolts (t-1)			
			Total OPI <sup>c/</sup>	Columbia River <sup>d/</sup>	OR Coast/ CA <sup>e/</sup>	Total OPI <sup>f/</sup>	Normal Timed <sup>g/</sup>	Delayed <sup>h/</sup>	Delayed Smolt Adjustment <sup>i/</sup>
	OPIH <sup>a/</sup>	MSM <sup>b/</sup>							
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 <sup>j/</sup>	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	6.8	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	4.7	23.2	22.0	0.8	0.7709
2006	440.6	523.4	25.9	20.9	5.4	21.8	20.6	0.4	0.4058
2007	476.6	545.3	36.3	34.2	2.5	21.6	20.4	0.1	0.1676
2008	565.3	576.9	16.0	14.0	1.4	22.7	21.4	0.6	0.3925
2009	1,066.2	1,051.0	60.4	58.4	2.6	22.7	21.9	1.1	2.9333

TABLE D-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)

Year (t)	Adults (t)		Jacks (t-1)			Columbia River Smolts (t-1)			
			Total OPI <sup>c/</sup>	Columbia River <sup>d/</sup>	OR Coast/CA <sup>e/</sup>	Total OPI <sup>f/</sup>	Normal Timed <sup>g/</sup>	Delayed <sup>h/</sup>	Delayed Smolt Adjustment <sup>i/</sup>
	OPIH <sup>a/</sup>	MSM <sup>b/</sup>							
2010	551.3	546.5	25.1	23.8	1.5	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	316.9	26.6	24.1	2.2	19.2	18.2	1.1	1.4566
2014	.	983.1 <sup>k/</sup>	51.4	49.4	2.0	19.6	18.6	0.6	1.5935

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 River.

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

Component and Basin <sup>a/</sup>	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	1998-2013 Avg.
<b>NORTHERN</b>																	
Necanicum	946	728	474	5,247	2,896	3,068	2,198	1,218	750	431	1,055	3,827	4,445	2,120	902	798	1,944
Nehalem	1,190	3,713	14,285	22,310	20,903	33,059	18,736	10,451	11,614	14,033	17,205	21,753	32,215	15,322	2,963	4,238	15,249
Tillamook	271	2,175	1,983	1,883	15,715	14,584	2,532	1,995	8,774	2,295	4,828	16,251	14,890	19,250	1,686	4,228	7,084
Nestucca	169	2,201	1,171	3,940	13,003	8,929	4,695	686	1,876	394	1,844	4,252	1,947	7,857	1,751	1,028	3,484
Ind. Tribs.	0	47	0	71	16	0	661	2,116	1,121	376	639	2,052	1,473	1,341	218	253	649
<b>TOTAL</b>	<b>2,576</b>	<b>8,864</b>	<b>17,913</b>	<b>33,451</b>	<b>52,533</b>	<b>59,640</b>	<b>28,822</b>	<b>16,466</b>	<b>24,135</b>	<b>17,529</b>	<b>25,571</b>	<b>48,135</b>	<b>54,970</b>	<b>45,890</b>	<b>7,520</b>	<b>10,545</b>	<b>28,410</b>
<b>NORTH CENTRAL</b>																	
Salmon	8	175	0	310	372	0	1,642	79	513	59	652	753	1,382	3,636	297	942	676
Siletz	394	706	3,553	1,437	2,252	9,736	8,179	14,567	5,205	2,197	20,634	24,070	6,283	33,094	4,495	6,508	8,957
Yaquina	365	2,588	647	3,039	23,981	13,254	5,539	3,441	4,247	3,158	10,913	11,182	8,589	19,074	6,268	2,876	7,448
Beaver Ck.	1,041	3,366	738	5,274	8,754	5,812	4,569	2,264	1,950	611	1,218	3,575	2,072	2,389	1,878	1,927	2,965
Alsea	213	2,050	2,465	3,339	6,170	8,957	5,233	13,907	1,972	2,146	13,320	14,638	9,688	28,337	8,470	8,311	8,076
Siuslaw	1,089	2,724	6,767	11,024	57,129	29,257	8,729	16,907	5,869	3,552	17,491	30,607	25,983	28,082	11,946	13,128	16,893
Ind. Tribs.	173	150	91	816	5,308	1,852	8,179	242	1,468	547	3,910	1,610	2,548	4,487	492	1,272	2,072
<b>TOTAL</b>	<b>3,283</b>	<b>11,759</b>	<b>14,261</b>	<b>25,239</b>	<b>103,966</b>	<b>68,868</b>	<b>42,070</b>	<b>51,407</b>	<b>21,224</b>	<b>12,270</b>	<b>68,138</b>	<b>86,435</b>	<b>56,545</b>	<b>119,099</b>	<b>33,846</b>	<b>34,964</b>	<b>47,086</b>
<b>SOUTH CENTRAL</b>																	
Umpqua	9,153	7,685	12,233	35,702	37,591	29,607	29,920	42,532	18,092	11,783	37,868	57,984	70,019	94,655	20,948	21,338	33,569
Coos	3,167	4,945	5,386	43,301	35,688	29,559	23,337	17,048	11,266	1,329	14,881	26,979	27,658	10,999	9,414	6,169	16,945
Coquille	2,466	3,001	6,130	13,310	8,610	23,909	22,138	11,806	28,577	13,968	8,791	22,286	23,564	55,667	5,911	21,820	16,997
Floras Ck.	252	164	1,440	1,945	20	310	7,446	506	1,104	340	786	3,203	11,329	9,217	2,502	1,676	2,640
Sixes R.	-	-	-	-	-	-	403	105	294	97	43	176	100	334	31	522	211
Coastal Lakes	11,107	13,442	12,747	19,669	22,162	16,688	18,642	14,725	24,127	8,955	23,608	17,349	38,744	20,281	18,922	12,344	18,345
Ind. Tribs.	-	-	-	-	-	-	-	-	-	-	0	188	484	101	48	-	164
<b>TOTAL</b>	<b>26,145</b>	<b>29,237</b>	<b>37,936</b>	<b>113,927</b>	<b>104,071</b>	<b>100,073</b>	<b>101,886</b>	<b>86,722</b>	<b>83,460</b>	<b>36,472</b>	<b>85,977</b>	<b>128,165</b>	<b>171,898</b>	<b>191,254</b>	<b>57,776</b>	<b>63,869</b>	<b>88,679</b>
<b>SOUTH</b>																	
Rogue <sup>b/</sup>	2,257	1,389	10,978	12,579	8,403	6,754	24,486	9,957	3,937	5,242	414	2,566	3,073	3,917	5,440	11,210	7,038
<b>COASTWIDE</b>	<b>34,261</b>	<b>51,249</b>	<b>81,088</b>	<b>185,196</b>	<b>268,973</b>	<b>235,335</b>	<b>197,264</b>	<b>164,552</b>	<b>132,756</b>	<b>71,513</b>	<b>180,100</b>	<b>265,301</b>	<b>286,486</b>	<b>360,160</b>	<b>104,582</b>	<b>120,588</b>	<b>171,213</b>

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 D-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)

Year (t)	Recruits		Environmental Index-Month(s) <sup>a/</sup>							
	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	-145.57	10.90	-	-1.10	78
1971	416.3	198.9	-1.77	28.96	-16.05	-64.80	11.69	8.65	-1.36	106
1972	185.5	129.2	-1.42	33.79	-8.15	-58.17	11.85	8.41	1.67	107
1973	235.0	51.2	-0.77	41.15	-19.50	-151.43	12.24	9.45	-1.61	80
1974	196.4	65.6	-0.22	33.20	-8.79	-72.20	10.95	9.29	-1.15	102
1975	208.4	24.1	-0.86	38.46	-38.99	-149.27	10.84	9.48	-1.90	83
1976	451.7	37.8	-0.25	22.62	-7.94	-111.30	10.71	9.05	0.72	103
1977	161.2	28.1	0.31	30.15	-34.77	-135.53	11.21	9.77	0.99	74
1978	111.6	34.8	-0.06	16.88	-5.59	-86.60	11.58	11.26	0.09	97
1979	188.8	39.2	0.70	24.03	-58.73	-91.57	11.23	8.72	0.69	73
1980	108.3	13.7	0.40	48.08	-42.72	-64.20	12.05	10.50	0.22	78
1981	174.5	18.2	1.43	28.80	-54.11	-81.63	12.15	11.75	0.02	88
1982	185.7	38.4	-0.26	28.85	-42.97	-68.83	10.99	9.86	2.24	109
1983	96.0	25.6	2.56	26.44	-46.62	-5.00	12.13	11.12	-0.09	126
1984	94.7	30.1	0.43	38.12	-52.44	-63.23	11.43	10.66	-0.17	112
1985	124.9	68.3	0.42	36.91	-12.17	-80.33	10.97	10.00	-0.10	48
1986	114.3	19.4	1.14	38.46	-19.72	-81.87	11.51	10.04	0.93	89
1987	77.8	59.7	1.53	36.07	-34.08	-79.93	11.43	10.59	1.43	81
1988	152.5	66.3	0.86	42.69	-20.23	-62.37	11.49	9.89	-1.41	68
1989	114.9	57.2	0.55	35.53	-4.82	-64.80	11.62	9.42	-0.19	97
1990	63.3	25.3	0.38	42.94	-12.08	-63.40	12.01	9.97	0.31	81
1991	84.1	45.7	-0.69	39.48	-2.08	-109.80	10.94	8.94	1.11	99
1992	107.6	40.7	1.57	36.75	-24.99	-29.50	12.70	10.11	0.64	123
1993	74.9	16.9	2.27	40.86	0.14	60.17	13.22	9.37	0.94	161
1994	41.0	30.4	0.58	39.04	-13.29	-63.27	11.45	11.04	1.36	87
1995	47.8	40.2	1.48	27.53	-25.29	-63.57	11.19	10.58	-0.49	95
1996	64.5	45.2	1.35	56.80	-4.70	-46.20	11.44	11.66	-0.27	120
1997	16.3	38.3	2.31	10.18	-55.94	-13.33	12.10	10.76	2.44	146
1998	22.4	42.8	0.35	49.68	-43.26	-39.97	11.38	12.26	-1.01	105
1999	38.3	60.5	-0.88	51.00	-34.18	-109.47	10.67	9.54	-1.05	91
2000	58.7	14.8	-0.38	35.78	-26.83	-53.27	11.36	10.00	-0.57	72

TABLE D-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)

Year (t)	Recruits		Environmental Index-Month(s) <sup>a/</sup>							
	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	-123.03	10.68	10.18	-0.23	61.00
2002	246.1	36.4	-0.43	50.49	-25.90	-145.30	10.11	10.07	1.01	80.00
2003	227.3	57.4	0.84	55.48	-26.35	-59.93	11.12	11.02	0.51	112.00
2004	164.0	152.9	0.45	26.99	4.34	-58.93	11.86	10.30	0.63	110.00
2005	146.3	238.4	1.23	51.75	-9.01	-21.80	12.55	10.21	-0.29	145.00
2006	113.1	211.9	0.62	53.57	-14.10	-32.37	11.15	11.46	1.09	112.00
2007	64.8	156.7	0.26	27.53	-9.88	-119.53	10.62	9.85	-1.16	74.00
2008	157.0	139.4	-1.46	32.71	-10.66	-108.87	9.62	8.92	-0.70	89.00
2009	262.9	104.5	-0.57	24.33	-47.08	-91.43	10.45	9.37	1.04	82.00
2010	255.7	57.2	-0.22	34.21	-32.89	-43.77	11.67	10.76	-1.77	100.00
2011	352.5	141.8	-0.97	29.33	-26.30	-41.30	10.69	10.12	-0.97	100.00
2012	98.2	245.4	-1.22	53.55	-29.90	-29.37	11.02	9.18	0.14	121.00
2013	113.9	241.6	-0.65	35.30	-7.81	-101.33	10.66	9.89	0.00	100.00
2014 <sup>b/</sup>	213.4	-	-	-	-	-	-	9.08	-	-

a/ Environmental Index descriptions:

PDO - Pacific Decadal Oscillation

UWI - Upwelling wind index (mean upwelling winds index in months of ocean migration year at 42° N 125° W)

SSH - Sea surface height (South Beach, OR at 44° 37.5' N, 124° 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.

**APPENDIX E**

**SACRAMENTO INDEX FORECAST**

**LIST OF FIGURES**

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## SACRAMENTO INDEX FORECAST

A forecast of the Sacramento Index (SI) was first used in the PFMC preseason fishery management process in 2008. The general SI forecasting approach has been based on a zero intercept linear model fitted to Jack (J) escapement (year  $t - 1$ ) and SI (year  $t$ ) data from 1990 forward, however different data ranges were used in some years (see Preseason report I from 2008 through 2013 for year-specific details).

In 2008, the SI was well forecast. However, the SI was over forecast, sometimes substantially, in the next four years (2009-2012), prompting an analysis of alternative forecast methods to determine whether other approaches would be expected to outperform the status quo method in the future. The analysis concluded that that alternative forecast approaches had the potential for modest improvements in forecast accuracy. In particular, the analysis concluded that the best approach among those considered was a log-log model relating jacks ( $t - 1$ ) to the SI ( $t$ ) with lag-1 autoregressive errors fitted to SI data from 1983-forward. The STT presented results of this analysis (see November 2013 Briefing Book, Agenda Item C.2.a, Attachment 5 at [www.pcouncil.org](http://www.pcouncil.org)) at the November PFMC meeting, and the SSC subsequently recommended to the Council that the lag-1 autoregressive error model be adopted for future forecasting of the SI. Later in the November meeting, the Council approved this methodology change as recommended by the SSC. This appendix describes the newly adopted SI forecast approach.

### Model Specification

The new SI forecast approach is based on a log-log model relating  $J(t - 1)$  to  $SI(t)$

$$\log SI_t = \beta_0 + \beta_1 \log J_{t-1} + \varepsilon_t \quad (1)$$

fitted to SI and J data from 1983-forward.  $\beta_0$  and  $\beta_1$  are regression parameters and  $\varepsilon_t$  is the residual error. The error term  $\varepsilon_t$  is a function of the error in year  $t - 1$

$$\varepsilon_t = \rho \varepsilon_{t-1} + v_t, \quad (2)$$

where  $\rho$  is the autocorrelation coefficient and  $v$  is a normally distributed error (termed an innovation) with mean zero and variance  $\sigma^2$ . Appealing to equations (1) and (2), forecasts of  $\log SI_t$  are made using the previous year's jack escapement and estimated ( $\hat{\cdot}$ ) quantities

$$\log SI_t = \hat{\beta}_0 + \hat{\beta}_1 \log J_{t-1} + \hat{\rho} \hat{\varepsilon}_{t-1}, \quad (3)$$

noting that the  $v_t$  term in equation (2) is omitted because it's expected value is zero. Residual error from year  $t - 1$  is specified by re-arranging equation (1) with modification to subscripts such that

$$\hat{\varepsilon}_{t-1} = \log SI_{t-1} - (\hat{\beta}_0 + \hat{\beta}_1 \log J_{t-2}). \quad (4)$$

The predicted  $\log SI_t$  is then transformed to the regular scale, correcting for bias in this transformation

$$SI_t = e^{\log SI_t + 0.5\sigma^2}. \quad (5)$$

## Model Application

Figure E-1 is a graphical depiction of the forecast procedure.

Panel (a) displays residual errors from year  $t - 1$  plotted against year  $t$  errors from a jack to SI log-log regression. Numbers represent year  $t$  and the dashed line is the 1:1 line. Errors from one year to the next are strongly correlated, suggesting that accounting for autocorrelated errors in the jack to SI relationship is appropriate. The estimated autocorrelation coefficient is 0.722.

Panel (b) is a plot of  $\log J_{t-1}$  to  $\log SI_t$  with the solid line representing the fitted model (equation 1). The open circle encapsulates the partially obscured 2013 SI value. In this case, the fitted model under predicted the observed  $\log SI_{2013}$ . The filled circle denotes the 2014 forecast of  $\log SI$ , which lies above the fitted line because of the positive residual estimated for 2013.

Panel (c) is a plot of the estimated autocorrelation coefficient over time. Estimates have ranged from 0.638 to 0.906 since 1995.

Panel (d) is a transformation of panel (b) to the regular scale. This panel is a slightly modified version of Figure II-2 in this report. Panels (d) and (b) demonstrate the general behavior of the model. If the previous year's SI was under (over) predicted by the fitted model (solid line), the current year's SI forecast is adjusted up (down) from the fitted line.

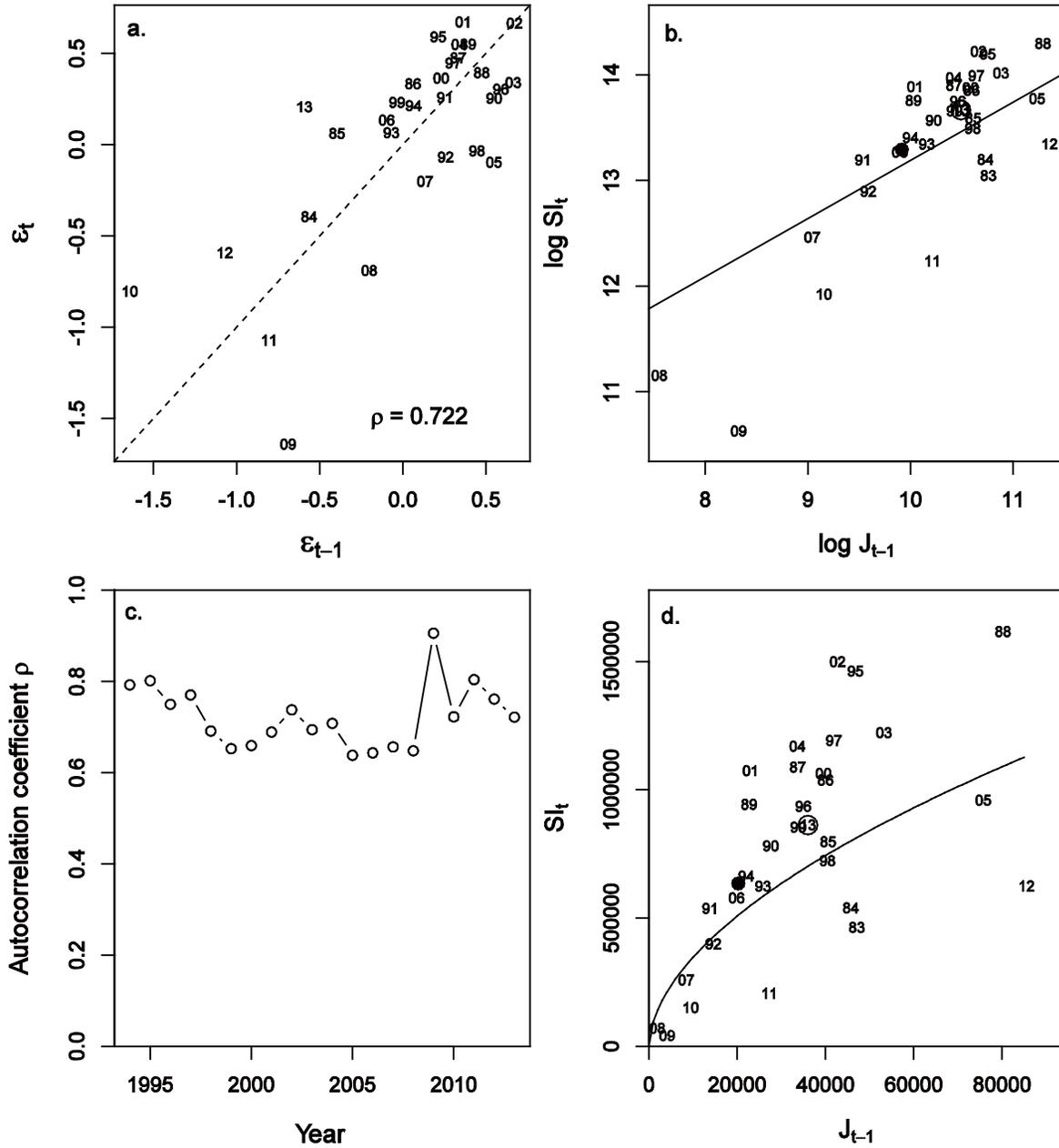
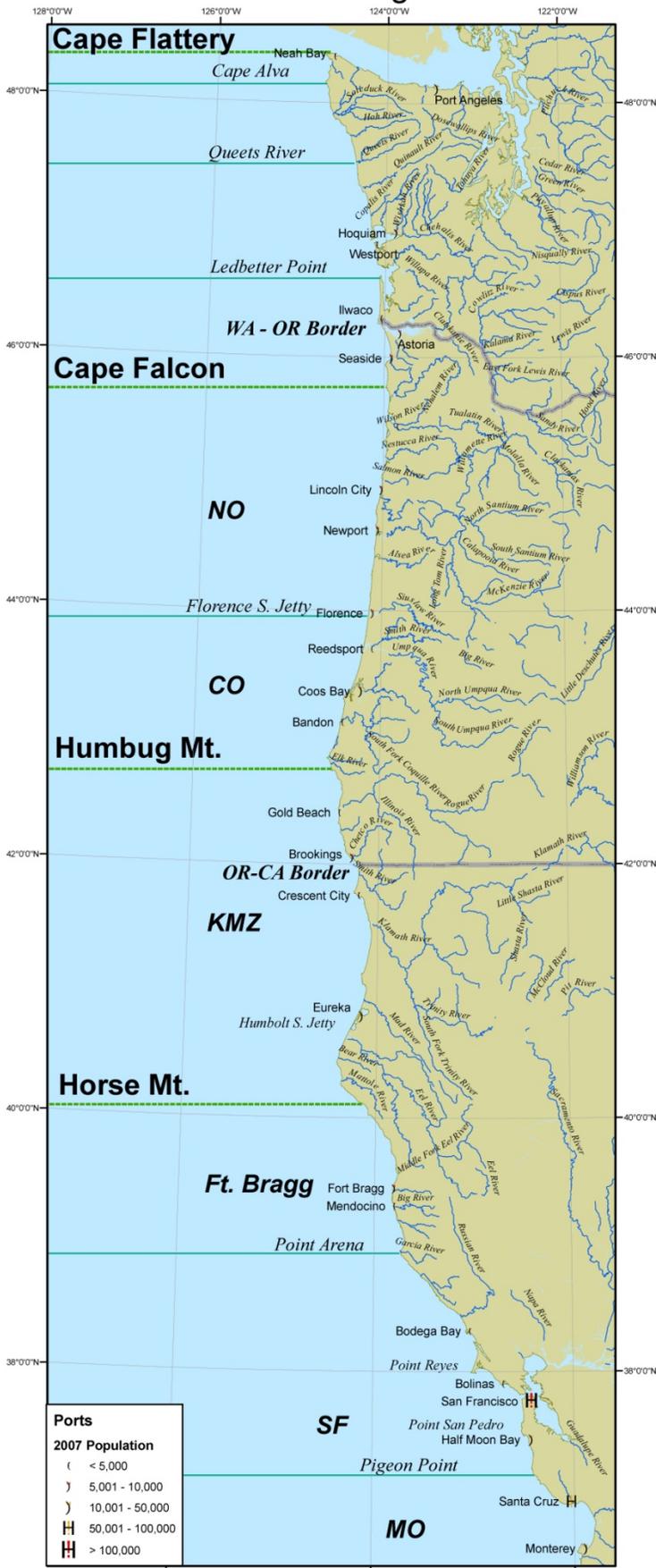


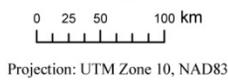
FIGURE E-1. Graphical display of the Sacramento Index (SI) forecasting procedure. See Appendix text for descriptions of panels (a) through (d).

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# Marine Fisheries Management Zones



Ports	
2007 Population	
(	< 5,000
)	5,001 - 10,000
)	10,001 - 50,000
H	50,001 - 100,000
H	> 100,000



Andrew Weiss  
 Fish Program  
 Biological Data Systems  
 Feb. 2009

**ENVIRONMENTAL ASSESSMENT PART 2  
PROPOSED ALTERNATIVES FOR 2014  
OCEAN SALMON FISHERY  
REGULATIONS**

REGULATION IDENTIFIER NUMBER 0648-XD072

**BASED ON**

**PRESEASON REPORT II\***



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

**MARCH April 2014**

**\* Modifications from the original PFMC document are indicated in red.**

# PUBLIC HEARINGS ON SALMON ALTERNATIVES

*All Hearings Begin at 7 p.m.*

***Monday, March 24***  
Chateau Westport  
Beach Room  
710 W Hancock  
Westport, WA 98595  
(360) 268-9101

***Monday, March 24***  
Red Lion Hotel  
South Umpqua Room  
1313 N Bayshore Drive  
Coos Bay, OR 97420  
(541) 267-4141

***Tuesday, March 25***  
Hilton Sonoma Wine  
Country  
Golden Gate CD Room  
3555 Round Barn Blvd.  
Santa Rosa, CA 95403  
(707) 523-7555

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*Public comment on the Alternatives will also be accepted during the April Council meeting on Saturday, April 5, during the public comment period for Agenda Item F.1 at the Hilton Vancouver Hotel, 301 West Sixth Street, Vancouver, Washington 98660, phone: 360-993-4500. **Written comments** received at the Council office **by midnight, on Monday, March 30, 2014** will be distributed to all Council members.*

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**Modifications from the original PFMC document are indicated in red.**

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
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
OPI	Oregon Production Index
OY	optimum yield
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
RER	rebuilding exploitation rate
RMP	Resource Management Plan

## LIST OF ACRONYMS AND ABBREVIATIONS (continued)

RK	Rogue/Klamath (hatchery coho)
S <sub>ACL</sub>	annual catch limit spawner abundance
SCH	Spring Creek Hatchery (tule fall Chinook returning to Spring Creek Hatchery)
SEAK	Southeast Alaska
S <sub>MSY</sub>	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
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 2014 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 Vancouver Washington, 301 West 6<sup>th</sup> Street, Vancouver, Washington. Written comments received at the Council office by March 30, 2014 will be copied and distributed to all Council members (Council staff cannot assure distribution of comments received after March 30).

This report also constitutes the second part of an Environmental Assessment (EA) to comply with National Environmental Policy Act (NEPA) requirements for the 2014 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 2014 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 2014b) 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 2014), 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 *(reiterated from Part 1 of this EA)*

The purpose of this action, implementation of the 2014 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, 2013 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 2014 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 2013 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 2013 catch ceilings established under the aggregate abundance based management (AABM) provisions of the 2009 PST Agreement except modified upward for WCVI to account for an expected shift into the next higher harvest tier; (3) minimum size limits identical to those in place for 2013; (4) 2013 preseason catch levels 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 that contain some changes from 2013 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 2014 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	
<b>Chinook</b>					
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
Lower Columbia River	Threatened	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
Upper Willamette River	Threatened	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
Upper Columbia River Spring	Endangered	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
Central Valley Spring	Threatened	76 FR 50447	8/15/2011	64 FR 50394	9/16/1999
California Coastal	Threatened	76 FR 50447	8/15/2011	64 FR 50394	9/16/1999
<b>Chum</b>					
Hood Canal Summer-Run	Threatened	76 FR 50448	8/15/2011	64 FR 14508	3/25/1999
Columbia River	Threatened	76 FR 50448	8/15/2011	64 FR 14508	3/25/1999
<b>Coho</b>					
Central California Coastal	Endangered	76 FR 50447	8/15/2011	61 FR 56138	10/31/1996
S. Oregon/ N. California Coastal	Threatened	76 FR 50447	8/15/2011	62 FR 24588	5/6/1997
Oregon Coastal	Threatened	76 FR 50448	8/15/2011	63 FR 42587	8/10/1998
Lower Columbia River	Threatened	76 FR 50448	8/15/2011		
<b>Sockeye</b>					
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 4, 2014, NMFS provided guidance on protective measures for species listed under the ESA during the 2014 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 2014 management season, as well as further guidance and recommendations for the 2014 management season.

The ESA consultation standards, exploitation rates, and other criteria in place for the 2014 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 **ESA**-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 **ESA**-listed salmonid ESUs found within the Council area, but not substantively impacted by Council managed fisheries, include:

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**Chinook**

Snake River spring/summer (threatened)  
Upper Willamette (threatened)

Puget Sound (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)  
South-central California coast (threatened)  
Upper Columbia River (endangered)  
Middle Columbia River (threatened)  
Snake River Basin (threatened)  
Puget Sound (threatened)

Central Valley, California (threatened)  
Central California coast (threatened)  
Upper Willamette River (threatened)  
Lower Columbia River (threatened)  
Northern California (threatened)

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## 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 2014 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 2014, Puget Sound and Washington coast coho constraints are as follows:

PST Southern Coho Management Plan		
U.S. Management Unit	Total Exploitation Rate Constraint <sup>b/</sup>	Categorical Status <sup>c/</sup>
Skagit	60%	Abundant
Stillaguamish	50%	Abundant
Snohomish	60%	Abundant
Hood Canal	65%	Abundant
Strait of Juan de Fuca	40%	Moderate
Quillayute Fall <sup>c/</sup>		Moderate
Hoh <sup>c/</sup>		Abundant
Queets <sup>c/</sup>		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 PST Southern Coho Management Plan.

c/ Categories (abundant, moderate, low) correspond to the general exploitation rate ranges depicted in paragraph 3(a) of the 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 2014 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 will be driven by Canadian domestic allowable impacts on the Thompson River component of the Interior Fraser management unit (in previous years, Canadian fisheries were managed so as not to exceed a three percent maximum exploitation rate).

The projected status of Canadian coho management units in 2014 indicates continuing concerns for the condition of Interior Fraser coho. 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 2014 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~~ **Notable** changes from recent seasons are highlighted below.

### 7.1 *Commercial*

Alternatives for the area north of Cape Falcon reflect a modestly higher relative abundance of Chinook and a substantially higher relative abundance of coho compared to 2013, with most of the increase in coho abundance attributable to Lower Columbia River hatchery coho. In 2014, allowable catch of Chinook will likely be similar to 2013 due to a higher relative abundance of LCR natural tule Chinook, but increased impacts in northern fisheries, and a total exploitation rate limit identical to 2013. Coho catch quotas will be higher than in 2013 due to abundant lower Columbia hatchery coho.

All Alternatives north of Cape Falcon assign two-thirds of the troll Chinook quota to the May-June Chinook directed fishery. In all Alternatives, the May-June fishery opens initially seven days per week with no landing and possession limit. The summer all-salmon fisheries for all Alternatives include Chinook and coho landing and possession limits. 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, the 40,700 natural area adult spawner objective for KRFC, 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 15.4 percent on ESA listed SRWC. The 2014 forecast of the Sacramento Index (SI) is lower than 2013, but high enough 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. For the North Oregon coast, the season end date is October 31 for each of the Alternatives. The Central Oregon coast features different season end dates among the Alternatives in an attempt to avoid fall harvest of KRFC. These include an end date of September 3 between Florence South Jetty and Humbug Mountain under Alternative I and an end date of September 3 between Cape Arago and Humbug Mountain in Alternative II. Short closures exist in August and in the transition between August and September for all Alternatives. Alternatives II and III also include a short closure at the beginning of July. Non-mark-selective incidental coho retention may be allowed in September under Alternative I if sufficient quota is available for transfer from the Cape Falcon to Humbug Mountain non-mark-selective recreational fishery.

In the Klamath Management Zone (KMZ), the Oregon portion has April and May open, and monthly quota fisheries with daily landing and possession limits for June, July, and August. Transfer of unused or exceeded quota to subsequent quota periods through August is allowed on an impact neutral basis. Alternatives I and II also allow quota fisheries in September with daily landing and possession limits. The California KMZ is closed in each Alternative, with the exception of September quota fisheries with landing and possession limits.

All Alternatives in the Fort Bragg area include open fisheries for portions of June through September with differences in fishing opportunity among the Alternatives for the month of June.

In the San Francisco area, the fishery will open in May and generally run through September, 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 all Alternatives.

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 would close for the year on August 13.

## 7.2 *Recreational*

In the area between the U.S./Canada Border and the Queets River, Alternatives I and II include Chinook directed recreational fisheries in May and June. Alternative I includes a Chinook directed recreational fishery beginning May 31 in the area between the Queets River and Cape Falcon, while the fishery in that area is limited to June in Alternative II. Both Alternatives have an area-wide mark-selective Chinook quota.

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 August 30 under Alternative I and September 1 under Alternatives II and 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 with 35,000 marked coho quota rolled into the 20,000 non-mark-selective coho quota. The resulting 40,300 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 2.5 percent for a total of 25.3 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 exploitation rate for OCN coho of 25.3 percent meets the OCN coho ESA consultation standard of no more than 30 percent should any or all of the 35,000 be rolled into the non-mark-selective fishery.

Chinook fishing in both the Oregon and California KMZ will run at least from Memorial Day weekend through Labor Day. Alternatives I and II allow for longer seasons, beginning earlier in May and lasting until September 7. Minimum size limits are 24 inches in under Alternatives I and II, and 20 inches under Alternative III.

South of the KMZ, the season will begin on April 5. In the Fort Bragg area, closing dates in November and minimum size limits vary among the Alternatives. For the San Francisco area, seasons run through November 9 with a minimum size limit of 24 inches early in the season that transitions to a 20 inch minimum size limit later in the season. The date when this change in minimum size limit occurs varies among the Alternatives. For the Monterey area, each Alternative specifies a season from April 5 through October 5 with a 24 inch minimum size limit.

### 7.3 *Treaty Indian*

Alternatives are generally similar in structure to 2013, with quotas that are similar or modestly increased. 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 2014b), 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 2013 Ocean Salmon Fisheries (PFMC 2014a). A more general description of salmon life history and population characteristics is presented in PFMC 2006. The current status (2014 ocean abundance forecasts) of the environmental components expected to be affected by the 2014 ocean salmon fisheries regulation Alternatives (FMP salmon stocks) are described in ~~PFMC 2014b-Part 1 of this EA (PRE-I)~~. 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 2014 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 225,000,

which is substantially higher than the 2013 preseason expectation of 126,000. The 2014 LRH forecast abundance is 110,000, higher than the forecast of 88,000 in 2013. The 2014 SCH forecast abundance is 115,000, which is much higher than last year's forecast of 38,000.

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 42.0 percent, and Alternative II exploitation rate of 41.5 percent exceed the 41.0 percent NMFS consultation standard maximum for all fisheries. The exploitation rate in Alternative III is 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 Alternatives I and II reaching compliance with the ESA consultation standard. LCR tules are the constraining Chinook stock for fisheries north of Cape Falcon in 2014.
- *SRW fall Chinook.* Alternatives have ocean exploitation rates of 48.5 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 2014.

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 2014 Chinook harvest management south of Cape Falcon are:

- *SRFC.* The SI forecast is 634,700, which is lower than the 2013 preseason forecast of 834,200.
- *KRFC.* The age-3 forecast is 219,800 KRFC. The age-4 forecast is 67,400 fish, and the age-5 forecast is 12,100. Last year's preseason forecast was 390,700 age-3, 331,200 age-4, and 5,700 age-5 fish.
- *SRWC.* No abundance forecast is made for this stock. The geometric mean of the most recent three years of escapement is 2,380 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.
- KRFC natural area spawning escapement of at least 40,700 adults, a spawner reduction rate not to exceed 68 percent (FMP conservation objective), and 50:50 tribal-non-tribal sharing of adult harvest (Department of Interior Solicitor Opinion).

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 SRWC impacts 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 2014 fisheries south of Point Arena to a maximum of 15.4 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 190,395 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 2014.

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 2014 forecast for hatchery coho from the Columbia River and the coast south of Cape Falcon of 983,100 is higher than the 2013 forecast of 525,400. The Columbia River early coho forecast is 526,600 compared to the 2013 forecast of 331,600 and the Columbia River late coho forecast is 437,500, compared to the 2013 forecast of 169,500.
- *OCN coho.* The 2014 OCN forecast is 230,600 compared to the 2013 forecast of 191,000.
- *LCN coho.* The 2014 LCN forecast is 33,100 compared to the 2013 forecast of 46,500.
- *Puget Sound coho.* Among Puget Sound natural stocks, Skagit, Snohomish, Stillaguamish, and Hood Canal are in the normal category in 2014, and Strait of Juan de Fuca is in the low category.

- *Interior Fraser (Thompson River) coho.* This Canadian stock continues to be depressed, and will continue to constrain ocean coho fisheries north of Cape Falcon in 2014.

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 2014 are: a combined marine/freshwater exploitation rate not to exceed 30.0 percent for OCN coho, a combined exploitation rate in marine-area and mainstem Columbia River fisheries not to exceed 22.5 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 2014, 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.

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 22.5 percent exploitation rate when 2014 projected marine impacts are combined with the 2013 preseason modeled impacts for mainstem Columbia River fisheries. Marine exploitation rates projected for 2014 Alternatives range from 14.9 percent in Alternative I to 11.9 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 2014 Alternatives range from 7,800 in Alternative I to 8,100 in Alternative III.
- *Interior Fraser coho.* Southern U.S. exploitation rates in all Alternatives exceed the 10.0 percent maximum required by the PST Southern Coho Management Plan. 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 not sufficiently abundant to merit management consideration in 2014.

### **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 2014 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 except Interior Fraser (Thompson River) coho (Table 5). Impacts in Council area fisheries alone are well below maximum allowed exploitation rates for Interior Fraser coho, and further shaping of inside fisheries will be required to comply with the PST Southern Coho Management Plan.

#### **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 and Alternative II (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 Alternative 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. These areas correlate to some extent with the ocean distribution of salmon stocks, although the various stocks are mixed in offshore waters. 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; 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 fishing communities is organized around these broad management areas.

The Review of 2013 Ocean Salmon Fisheries (PFMC 2014a) provides a 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 and community level personal income impacts resulting from both commercial and recreational fishing activities are used.

The short-term economic effects of the proposed 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. 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 represent 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.

Fishing effort estimates for the recreational fishery south of Cape Falcon are based on measures developed by the STT for modeling biological impacts. STT estimates for south of Cape Falcon use multi-year averages to predict effort for the coming year. Consequently, if the multi-year average for a particular time period and area happens to be higher than last year's effort level, then the model may forecast an increase in effort for the coming year even though management measures may actually be relatively more constraining or *vice-versa*. 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, since north of Cape Falcon coho quotas are significantly higher than in the recent past and the highest since 2009, the average 2009 Washington coho CPUE was applied to the coho quota under each Alternative. For the June Chinook fisheries in Alternatives I and II, 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 adjacent to neighboring catch areas. This pattern is particularly true for areas between Humbug Mountain and Point Arena. In an attempt to account for this effect by assigning 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 2013 there were substantial deliveries of salmon caught between Cape Falcon and Humbug Mountain to landing ports in the Oregon KMZ, and of salmon caught between Horse Mountain and Point Arena to landing ports in the California KMZ region. There were also transfers of harvest between other catch areas and adjacent landings ports but these were much 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 2013 were at their highest level in inflation-adjusted terms since 2008, reversing a declining annual trend from that time. However if lower coastwide commercial Chinook harvests projected under the Alternatives (especially due to lower forecasts for areas south of Horse Mountain) contribute to somewhat higher average exvessel prices than were observed in 2013, then salmon exvessel revenue and resulting commercial fisheries income impacts projected in this document may be understated.

### **8.2.1 Alternative I**

Under Alternative I, coastwide community personal income impacts from commercial salmon fisheries are projected to fall below last year’s (2013) level by 26 percent but to exceed the recent (2009-2013) inflation-adjusted average by 72 percent. Coastwide recreational income impacts are projected to exceed last year’s level by 35 percent and the inflation-adjusted 2009-2013 average by 73 percent.

Commercial fisheries income impacts are projected to exceed last year’s level in management areas north of Cape Falcon and between Humbug Mountain and Horse Mountain, but to fall below last year’s performance in all remaining areas. Commercial fisheries income impacts under Alternative I are projected to exceed the inflation-adjusted 2009-2013 average in all management areas. 2014 commercial fisheries income impacts north of Cape Falcon are projected to be 48 percent higher than in 2013 and 72 percent higher than the 2009-2013 inflation-adjusted average.

Areas between Cape Falcon and Humbug Mountain and areas south of Horse Mountain would see commercial fisheries income impacts that are at least 18 percent below their 2013 level but still no less than nine percent above the 2009-2013 inflation-adjusted average. The area between Humbug Mountain and Horse Mountain is projected to see commercial fisheries income impacts 33 percent above the 2013 level and 260 percent above the 2009-2013 inflation-adjusted average (chiefly due to assumed landings from adjacent catch areas).

Projected income impacts from recreational fisheries north of Cape Falcon are 88 percent higher than in 2013 and 79 percent higher than the 2009-2013 inflation-adjusted average.

Recreational fisheries income impacts south of Cape Falcon are projected to be nine percent higher overall than in 2013 and 68 percent higher than the 2009-2013 inflation-adjusted average. Impacts are projected to be positive in all management areas except KMZ, where a decline of 12 percent from 2013 is projected, but still 58 percent above the 2009-2013 inflation-adjusted average. The greatest percentage

increase for management areas south of Cape Falcon is for the Horse Mountain to Point Arena region where an increase of 22 percent is projected, 102 percent above the 2009-2013 inflation-adjusted average.

Income impacts under Alternative I are not projected to be significant. Combined commercial and recreational community income impacts in affected management areas are either positive compared with last year or substantially above recent year averages and within the observed historical range of impact levels.

### **8.2.2 Alternative II**

Under Alternative II, coastwide community personal income impacts from commercial salmon fisheries are projected to fall below last year's (2013) level by 19 percent but to exceed the recent (2009-2013) inflation-adjusted average by 91 percent. Coastwide recreational income impacts are projected to exceed last year's level by 26 percent and the inflation-adjusted 2009-2013 average by 61 percent.

Commercial fisheries income impacts are projected to exceed last year's level in all management areas north of Horse Mountain, but to fall below last year's performance in all areas south of Horse Mountain. Commercial fisheries income impacts under Alternative II are projected to exceed the inflation-adjusted 2009-2013 average in all management areas.

2014 commercial fisheries income impacts in the area north of Cape Falcon are projected to be 44 percent higher than in 2013 and 67 percent higher than the 2009-2013 inflation-adjusted average. The area between Cape Falcon and Humbug Mountain is projected to see commercial fisheries income impacts six percent above the 2013 level and 145 percent above the 2009-2013 inflation-adjusted average.

The area between Humbug Mountain and Horse Mountain is projected to see commercial fisheries income impacts 44 percent above the 2013 level and 289 percent above the 2009-2013 inflation-adjusted average (chiefly due to assumed landings from adjacent catch areas). Areas south of Horse Mountain would see projected commercial fisheries income impacts at least 28 percent below their 2013 level, but still no less than 10 percent above the 2009-2013 inflation-adjusted average.

Projected income impacts from recreational fisheries north of Cape Falcon are 69 percent higher than in 2013 and 61 percent above the 2009-2013 inflation-adjusted average.

Recreational fisheries income impacts south of Cape Falcon are projected to be four percent higher overall than in 2013 and 61 percent higher than the 2009-2013 inflation-adjusted average. Impacts are projected to be positive in all management areas except Cape Falcon to Humbug Mountain and KMZ, where declines of five percent and 18 percent from 2013 are projected, respectively. But these values are still 11 percent and 47 percent, respectively, above the 2009-2013 inflation-adjusted average. The greatest percentage increase for management areas south of Cape Falcon is for the Horse Mountain to Point Arena region where an increase of 22 percent is projected, 102 percent above the 2009-2013 inflation-adjusted average.

Income impacts under Alternative II are not projected to be significant. Combined commercial and recreational community income impacts in affected management areas are either positive compared with last year or substantially above recent year averages and within the observed historical range of impact levels.

### **8.2.3 Alternative III**

Under Alternative III, coastwide community personal income impacts from commercial salmon fisheries are projected to fall below last year's (2013) level by 23 percent but to exceed the recent (2009-2013)

inflation-adjusted average by 80 percent. Coastwide recreational income impacts are projected to exceed last year's level by 14 percent and the inflation-adjusted 2009-2013 average by 45 percent.

Commercial fisheries income impacts are projected to exceed last year's level in all management areas north of Horse Mountain, but to fall below last year's performance in all areas south of Horse Mountain. Projected commercial fisheries income impacts under Alternative III are projected to exceed the inflation-adjusted 2009-2013 average in all management areas.

2014 commercial fisheries income impacts in the area north of Cape Falcon are projected to be 24 percent higher than in 2013 and 44 percent above the 2009-2013 inflation-adjusted average. The area between Cape Falcon and Humbug Mountain is projected to see commercial fisheries income impacts six percent above the 2013 level and 145 percent above the 2009-2013 inflation-adjusted average.

The area between Humbug Mountain and Horse Mountain is projected to see commercial fisheries income impacts 32 percent above the 2013 level and 260 percent above the 2009-2013 inflation-adjusted average (chiefly due to assumed landings from adjacent catch areas). Areas south of Horse Mountain would see projected commercial fisheries income impacts at least 32 percent below their 2013 level, but still at least 10 percent above the 2009-2013 inflation-adjusted average.

Projected income impacts from recreational fisheries north of Cape Falcon are 38 percent higher than in 2013 and 31 percent higher than the 2009-2013 inflation-adjusted average.

Recreational fisheries income impacts south of Cape Falcon are projected to be one percent higher overall than in 2013 and 57 percent higher than the 2009-2013 inflation-adjusted average. Impacts are projected to be positive in all management areas except Cape Falcon to Humbug Mountain and KMZ, where declines of 11 percent and 28 percent from 2013 are projected, respectively. But these values are still five percent and 30 percent, respectively, above the 2009-2013 inflation-adjusted average. The greatest percentage increase for management areas south of Cape Falcon is for the Horse Mountain to Point Arena region where an increase of 22 percent is projected, 102 percent above the 2009-2013 inflation-adjusted average.

Income impacts under Alternative III are not projected to be significant. Combined commercial and recreational community income impacts in affected management areas are either positive compared with last year or substantially above recent year averages and within the observed historical range of impact levels.

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

The commercial fishery Alternatives are expected to generate coastwide revenue impacts that are at least 27 percent and income impacts at least 19 percent below 2013 levels, although these levels are still well above the 2009-2013 inflation-adjusted average. However these results mask regional differences along the coast. While revenues and income impacts from commercial fisheries in catch areas and ports north of Humbug Mountain are projected generally to be higher under the Alternatives than last year and the average of the recent past, catch areas south of Humbug Mountain are projected to see reductions in exvessel revenue compared with 2013 although generally not so compared with the 2009-2013 inflation-adjusted average. The assumed shifting of a portion of landings (based on 2013 patterns) from areas immediately north and south of the KMZ to landings ports in the KMZ may offset some of the effect of reduced KMZ area harvest on regional ports. However areas south of the KMZ are projected to see substantial reductions in harvest and income impacts compared with 2013 (although generally not compared with the 2009-2013 inflation-adjusted average).

Total coastwide income impacts from recreational fisheries are projected to be higher than in 2013 and the 2009-2013 inflation-adjusted average. However areas between Cape Falcon and Humbug Mountain and the KMZ are projected to see reductions under most or all the Alternatives. Overall, the region south of Cape Falcon is projected to see relatively small increases compared with 2013 under all three Alternatives, although still well above the 2009-2013 averages. Areas north of Cape Falcon are projected to see the highest numbers of recreational angler trips and resulting income impacts since 2009.

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

Prior NEPA analyses have considered the effects of the ocean salmon fisheries on non-target fish species. Since then, ocean salmon fisheries have not changed substantially in terms of season length, areas, depth, bag limits, etc. Nor is there any new information to suggest that the incidental nature of encounters of non-target species in ocean salmon fisheries has changed. Therefore, conclusions from previous environmental analyses indicating that effects on non-target fish species are low and not significant are still applicable, as discussed below. The differences between the Alternatives for the 2014 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 2014 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 2014 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 2014 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 14418). Recreational salmon fisheries use similar gear and techniques as the commercial fisheries and are assumed to have similar encounter rates and impacts. The non-ESA listed marine mammal species that are known to interact with ocean salmon fisheries are California sea lion and harbor seals. Populations of both these species are at stable and historically high levels. There is no new information to suggest that the nature of interactions between California sea lions or harbor seals in ocean salmon fisheries has changed since the Category III determination. Therefore, the impacts from the 2014 salmon regulation Alternatives to non-ESA listed marine mammals are not expected to be significant, and there is no discernible difference between the effects of the Alternatives on these resources.

## 8.5 *ESA Listed Species*

Steller sea lion interaction with the Pacific Coast salmon fisheries is rare and NMFS has determined mortality and serious injury incidental to commercial salmon troll fishing operations have a negligible effect on this species (NMFS 2003; Appendix B). 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 between 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 2014 ocean salmon regulations are covered by the NMFS 2008 BO, and on that basis it is expected that the 2014 regulations would not have significant impacts to Southern Resident killer whales. There is no discernible difference between 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 2014 Council area ocean salmon fisheries are in compliance with applicable BOs for listed ESUs of these species as listed in Chapter 5 of this document. Because anticipated impacts are negligible, there are no significant impacts expected on listed sockeye or chum salmon or steelhead trout from the Alternatives analyzed in this EA, and there is no discernible difference between the effects of the Alternatives on these resources.

## 8.6 *Seabirds*

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

## 8.7 *Biodiversity and Ecosystem Function*

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

## 8.8 *Ocean and Coastal Habitats*

Council Area salmon fisheries do not employ bottom contact gear, and there is no evidence of direct gear effects on fish habitat from Council-managed salmon fisheries on 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 2014 ocean salmon regulations have season structures similar to those employed in previous salmon seasons and are not expected to result in any significant increase in the risk to human health or safety at sea (PFMC 2006; Appendix B). There are also no discernible differences between the effects of the Alternatives on the risk to human health or safety at sea.

### **8.10 Cumulative Impacts**

Cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable actions, including impacts outside the scope of the proposed action (in this case annual management measures). Two broad categories of cumulative impacts can be identified for salmon species affected by Council managed ocean commercial and recreational fisheries. The first category includes other ocean fisheries, some of which are managed by the Council, and inside fisheries prosecuted in internal waters (like Puget Sound) and in rivers as salmon migrate towards their spawning grounds. Fishing mortality also has some broader ecological effects, since it removes salmon that might otherwise be consumed by other ecosystem components. The second category comprises human activities that affect the sustainability of salmon populations. Because salmon spend part of their life cycle in fresh water, they are more vulnerable to a broad range of human activities (since humans spend most of their time on land) that affect the quantity and quality of these freshwater environments. These effects are generally well known and diverse. They include physical barriers to migration (dams), changes in water flow and temperature (often a secondary effect of dams or water diversion projects), and degradation of spawning environments (such as increased silt in the water from adjacent land use). A very large proportion of the long-term, and often permanent, declines in salmon stocks is attributable to this class of impacts. (For a detailed summary of non-fishing impacts to salmon habitat see Section 3.2.5 of the EFH Appendix A to Amendment 14, **which is incorporated by reference and can be found on the Council's website, [www.pcouncil.org](http://www.pcouncil.org)**).

Consideration of cumulative effects is intrinsic to fishery management. When developing management measures, fishery managers try to account for all sources of mortality in a given population and the productivity of that population. This accounting does not have to be explicit, in that total mortality is exactly partitioned among each cause, except that natural and fishing mortality are distinguished. The aggregation accounts for a wide variety of effects, including past fishing mortality. Fishing mortality beyond the upcoming season is not accounted for in population models, but it can be broadly anticipated based on limits set by the management regime. Other actions (e.g., habitat degradation) are accounted for in estimates of natural mortality and population productivity. In the case of salmon, fishing mortality is reasonably accounted for because historical harvest is used to forecast expected harvest impacts based on proposed management Alternatives and quotas or allocations to other fisheries are known or foreseeable. Natural mortality is estimated and accounts for non-fishing impacts to a given population. By the same token, productivity estimates include reproductive success and recruitment to the adult, fishable population. This accounts for short- and long-term changes to spawning habitat, among other things. Although salmon's anadromous life cycle exposes key life stages to human-induced impacts, it makes the task of stock assessment much easier because spawning escapement can be estimated with a fair degree of certainty. Marine survival is harder to measure. But taken together, as part of the stock assessment, these measures effectively account for cumulative effects to salmon targeted by the proposed action. However, the effect of fishing on the ecosystem, due to the shift in balance between fishing and natural mortality, is much harder to predict. Fish removed by fishermen are unavailable to other trophic levels, to be eaten by

predators or recycled by decomposers for example. These effects cannot be readily assessed, but there is no indication fishing mortality substantially contributes to ecosystem-wide effects.

Despite the effectiveness of these management models in accounting for cumulative impacts, uncertainty by itself can be considered an additional source of cumulative impacts. Although easier for salmon than other marine species, it is inherently difficult to precisely measure many population parameters. These multiple uncertainties have a compound effect, and in this sense, uncertainty produces cumulative effects that must be accounted for in decision making. For example, drop-off mortality cannot be measured directly and must be estimated. Similarly, estimating mortality from recreational fishing may be less precise than from commercial fishing because it is logistically more difficult to monitor fisheries with many thousands of participants fishing in the ocean, rivers, and streams. The cumulative effect of error in parameter estimates ultimately determines managers' success in setting management targets that ensure sustained exploitation across all users. The discussion of abundance predictors and comparison of preseason predictions with postseason estimates, found in the Preseason Report I, shows predictions are generally accurate. In comparison to other fisheries, these cumulative errors have not detracted from management performance.

The Alternatives do not differ greatly in the context of cumulative impacts, since all other impacts besides those resulting from the proposed action, discussed here, apply equally to each of the Alternatives. For this reason, the direct impacts of the Alternatives, in this case the level of fishing mortality that would result, correlates directly with cumulative impacts. As a result, Alternatives that allow greater harvest produce a greater cumulative impact.

Cumulative impacts on salmon stocks and their habitat could be significant if conservation objectives are not met, which could result in adversely affecting the productivity of those stocks and associated economic benefits of fisheries, and could diminish the quality of habitat used by juvenile salmon and other terrestrial organisms. The final action, which will be analyzed in Preseason Report III, is expected to meet conservation objectives for all Salmon stocks in the FMP.

## **9.0 CONCLUSION**

This analysis has identified no significant environmental impacts that would result from the 2014 ocean salmon regulation Alternatives, from final regulations selected from within the range presented in these Alternatives.

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## 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 1-2, 2013: **Salmon Technical Team/Scientific and Statistical Committee Salmon Subcommittee joint meeting**, Portland, Oregon.
- November 6-10: **Pacific Fishery Management Council meeting**, Costa Mesa, California.
- January 21-24, 2014: **Salmon Technical Team (Review preparation)**, Portland, Oregon.
- February 7: California Fish and Game Commission meeting, Sacramento, California.
- February 18-21: **Salmon Technical Team (Preseason Report I preparation)**, Portland, Oregon.
- February 26: California Department of Fish and Wildlife public meeting, Santa Rosa, California.
- February 27: Oregon Salmon Industry Group meeting, Newport, Oregon.
- March 3: Washington Department of Fish and Wildlife public meeting, Olympia, Washington.
- March 8-13: **Pacific Fishery Management Council meeting**, Sacramento, California.
- March 7: Oregon Fish and Wildlife Commission meeting, Salem, Oregon.
- March 17: North of Falcon and *U.S. v. Oregon Forums*, Vancouver, Washington.
- March 19: California Fish and Game Commission meeting, Sacramento, California.  
North of Falcon, Ocean fisheries, Puget Sound, and *U.S. v. Oregon Forums*, Olympia, Washington.
- March 24-25: **Public hearings on management options** in Westport, Washington; Coos Bay, Oregon; and Santa Rosa, California.
- April 1: North of Falcon, Ocean fisheries and Puget Sound Forums, Lynnwood, Washington.
- April 3: North of Falcon, Ocean fisheries, and *U.S. v. Oregon Forums*, Olympia, Washington.
- April 3-10: **Pacific Fishery Management Council meeting**, Vancouver, Washington.
- April 11-12: Washington Fish and Wildlife Commission meeting, Olympia, WA.
- April 16: California Fish and Game Commission meeting, Ventura, California.
- May 16: Oregon Fish and Wildlife Commission meeting, Salem, 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**

- National Marine Fisheries Service (NMFS). 2003. Final Programmatic environmental impact statement for Pacific salmon fisheries management off the coasts of Southeast Alaska, Washington, Oregon, and California, and in the Columbia River basin. National Marine Fisheries Service Northwest Region, Seattle.
- NMFS. 2008. Endangered Species Act-section 7 formal consultation biological opinion: Effects of the 2008 Pacific Coast salmon plan fisheries on the southern resident killer whale distinct population segment (*Orcinus orca*) and their critical habitat. National Marine Fisheries Service Northwest Region, Seattle.
- 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.
- PFMC. 2014a. Review of 2013 ocean salmon fisheries. Pacific Fishery Management Council, Portland, Oregon.
- PFMC. 2014b. Preseason Report I: Stock abundance analysis and environmental assessment part 1 for 2014 ocean salmon fishery management measures. Pacific Fishery Management Council, Portland, Oregon.

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014 (Page 1 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<b>North of Cape Falcon</b>	<b>North of Cape Falcon</b>	<b>North of Cape Falcon</b>
<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>
<p>1. Overall non-Indian TAC: 117,500 (non-mark-selective equivalent of 112,500) Chinook and 230,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Non-Indian commercial troll TAC: 57,500 Chinook and 36,800 marked coho.</p> <p>3. Trade: May be considered at the April Council meeting.</p> <p>4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.</p>	<p>1. Overall non-Indian TAC: 114,000 (non-mark-selective equivalent of 110,000) Chinook and 210,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Non-Indian commercial troll TAC: 56,000 Chinook and 33,600 marked coho.</p> <p>3. Trade: May be considered at the April Council meeting.</p> <p>4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.</p>	<p>1. Overall non-Indian TAC: 95,000 Chinook and 190,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Non-Indian commercial troll TAC: 47,500 Chinook and 30,400 marked coho.</p> <p>3. Trade: May be considered at the April Council meeting.</p> <p>4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.</p>
<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>May 1 through earlier of June 30 or 38,300 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 (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 28,725 Chinook have been landed overall, or 9,675 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.</li> </ul>	<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>May 1 through earlier of June 30 or 37,300 Chinook, no more than 12,000 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 27,975 Chinook have been landed overall, or 9,000 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.</li> </ul>	<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>May 1 through earlier of June 30 or 31,700 Chinook.</li> </ul> <p>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). See compliance requirements (C.1) and gear restrictions and definitions (C.2, C.3). When it is projected that 23,775 Chinook have been landed 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.</p>
<p>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 nfallon.trollreport@state.or.us. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8).</p>		

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 2 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>July 1 through earlier of September 16 or attainment of the quota of 19,200 Chinook (C.8), no more than 8,800 of which may be caught in the area between the U.S./Canada border and the Queets River, or 36,800 marked coho (C.8.d).</li> </ul> <p>July 1-8 then Friday through Tuesday July 11-August 19 with a landing and possession limit of 75 Chinook and 60 coho per vessel per open period; Friday through Tuesday August 22-September 16 with a landing and possession limit of 20 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 (C.6). When it is projected that 14,400 Chinook have been landed overall, or 6,975 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).</p>	<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>July 1 through earlier of September 16 or attainment of the quota of 18,700 Chinook (C.8), no more than 8,600 of which may be caught in the area between the U.S./Canada border and the Queets River, or 33,600 marked coho (C.8.d)</li> </ul> <p>July 1-2, July 4-8, then Friday through Tuesday July 11-August 19 with a landing and possession limit of 65 Chinook and 45 coho per vessel per open period; Friday through Tuesday August 22-September 16 with a landing and possession limit of 15 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 (C.6). 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).</p>	<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>July 1 through earlier of September 16 or 15,800 Chinook (C.8) or a 30,400 marked coho quota (C.8.d)</li> </ul> <p>July 1-4, July 6-8, then Friday through Tuesday July 11-August 26 with a landing and possession limit of 50 Chinook and 45 coho per vessel per open period; Friday through Tuesday August 29-September 16 with a landing and possession limit of 15 Chinook and 50 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).</p>
<p>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 nfallcon.trollreport@state.or.us. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts.</p>		

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (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: 52,866 adult Sacramento River fall Chinook. 2. Sacramento River fall Chinook spawning escapement of 324,748 adults. 3. Klamath River recreational fishery allocation: 4,145 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 27,288 adult Klamath River fall Chinook.	1. Sacramento River Basin recreational fishery catch assumption: 51,348 adult Sacramento River fall Chinook. 2. Sacramento River fall Chinook spawning escapement of 315,423 adults. 3. Klamath River recreational fishery allocation: 4,109 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 27,296 adult Klamath River fall Chinook.	1. Sacramento River Basin recreational fishery catch assumption: 52,520 adult Sacramento River fall Chinook. 2. Sacramento River fall Chinook spawning escapement of 322,620 adults. 3. Klamath River recreational fishery allocation: 4,204 adult Klamath River fall Chinook. 4. Klamath tribal allocation: 27,274 adult Klamath River fall Chinook.
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.		
<b>Cape Falcon to Humbug Mt.</b> <ul style="list-style-type: none"> <li>April 1-July 31, August 6-29;</li> <li>September 3-October 31 (C.9.a).</li> </ul> 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, closed between Florence South Jetty and Humbug Mt. Open Cape Falcon to Florence South Jetty with no more than 100 Chinook per vessel per landing week (Wed.-Tues.). <b>Non-selective incidental coho retention:</b> <ul style="list-style-type: none"> <li>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).</li> </ul> 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.	<b>Cape Falcon to Humbug Mt.</b> <ul style="list-style-type: none"> <li>April 1-June 30;</li> <li>July 6-31;</li> <li>August 6-29;</li> <li>September 3-October 31 (C.9.a).</li> </ul> Seven day 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 (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, closed between Cape Arago and Humbug Mt. Open Cape Falcon to Cape Arago with no more than 75 Chinook per vessel per landing week (Wed.-Tues.). In 2015, same as Alternative I	<b>Cape Falcon to Humbug Mt.</b> <ul style="list-style-type: none"> <li>April 1-June 30;</li> <li>July 6-31;</li> <li>August 6-29;</li> <li>September 3-October 31 (C.9.a).</li> </ul> Seven day 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 (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 50 Chinook per vessel per landing week (Wed.-Tues.). In 2015, same as Alternative I

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 4 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• April 1-May 31;</li> <li>• June 1 through earlier of June 30, or a 1,500 Chinook quota;</li> <li>• July 1 through earlier of July 31, or a 1,000 Chinook quota;</li> <li>• August 6 through earlier of August 29, or a 500 Chinook quota;</li> <li>• September 15 through earlier of September 27 or a 500 Chinook quota (C.9.a).</li> </ul> <p>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 – August 29 landing and possession limit of 30 Chinook per vessel per day. September 15-27 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, 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).</p> <p>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.</p>	<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• April 1-May 31;</li> <li>• June 1 through earlier of June 30, or a 1,500 Chinook quota;</li> <li>• July 6 through earlier of July 31, or a 500 Chinook quota;</li> <li>• August 6 through earlier of August 29, or a 500 Chinook quota;</li> <li>• September 15 through earlier of September 27 or a 500 Chinook quota (C.9.a).</li> </ul> <p>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 – August 29 landing and possession limit of 25 Chinook per vessel per day. September 15-27 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, 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).</p> <p>In 2015, same as Alternative I.</p>	<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• April 1-May 31;</li> <li>• June 1 through earlier of June 30, or a 1,000 Chinook quota;</li> <li>• July 6 through earlier of July 31, or a 500 Chinook quota;</li> <li>• August 6 through earlier of August 29, or a 500 Chinook quota (C.9.a).</li> </ul> <p>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 – August 29 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, 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).</p> <p>In 2015, same as Alternative I.</p>

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 5 of 9)		
A. SEASON ALTERNATIVE DESCRIPTIONS		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>September 5 through earlier of September 30, or 10,000 Chinook quota (C.9.b).</li> </ul> <p>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 30 Chinook per vessel per day (C.8.g).</p>	<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>September 12 through earlier of September 30, or 6,000 Chinook quota (C.9.b).</li> </ul> <p>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).</p>	<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>September 12 through earlier of September 30, or 3,000 Chinook quota (C.9.b).</li> </ul> <p>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).</p>
<p>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 Humboldt Mountain and open to the south, vessels with fish on board caught in the open area off California may seek temporary mooring in Brookings, Oregon prior to landing in California only if such vessels first notify the Chetco River Coast Guard Station via VHF channel 22A between the hours of 0500 and 2200 and provide the vessel name, number of fish on board, and estimated time of arrival (C.6.).</p>		
<p><b>Humboldt South Jetty to Horse Mt. Closed.</b></p>	<p><b>Humboldt South Jetty to Horse Mt. Closed.</b></p>	<p><b>Humboldt South Jetty to Horse Mt. Closed.</b></p>
<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>June 16-30;</li> <li>July 15-31;</li> <li>August 1-29;</li> <li>September 1-30 (C.9.b).</li> </ul> <p>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 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).</p> <p>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.</p>	<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>June 18-30;</li> <li>July 15-31;</li> <li>August 1-29;</li> <li>September 1-30 (C.9.b).</li> </ul> <p>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 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).</p> <p>In 2015, same as Alternative I.</p>	<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>June 15-30;</li> <li>July 15-31;</li> <li>August 1-29;</li> <li>September 1-30 (C.9.b).</li> </ul> <p>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 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).</p> <p>In 2015, same as Alternative I.</p>

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 6 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 11-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p> <p><b>Point Reyes to Point San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• October 1-3, 6-10, and 13-15.</li> </ul> <p>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).</p>	<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 1-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p> <p><b>Point Reyes to Point San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• October 1-3, 6-10, and 13-15.</li> </ul> <p>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).</p>	<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 7-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p> <p><b>Point Reyes to Point San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• October 1-3, 6-10, and 13-15.</li> </ul> <p>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).</p>
<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 11-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p>	<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 1-30;</li> <li>• July 15-31;</li> <li>• August 1-13 (C.9.b).</li> </ul> <p>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).</p>	<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 7-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p>
<p>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)</p>		

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 7 of 9)

<b>B. MINIMUM SIZE (Inches) (See C.1)</b>					
Area (when open)	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
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	27.0	20.5	-	-	None
Horse Mt. to Pt. Arena	27.0	20.5	-	-	None
Pt. Arena to U.S./Mexico Border	≤ Aug. 29	27.0	-	-	None
	≥ Sept. 1	26.0	-	-	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 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. **Alternative I: Salmon may not be filleted prior to landing.**

**Alternative I:** 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 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 90° angle.

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

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

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 8 of 9)

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

- 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 (48°23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48°10'00" N. lat.) and east of 125°05'00" W. long.
- b. *Mandatory Yelloweye Rockfish Conservation Area* – The area in Washington Marine Catch Area 3 from 48°00.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°16.50' W. long. to 48°00.00' N. lat.; 125°16.50' W. long. and connecting back to 48°00.00' N. lat.; 125°14.00' W. long.
- c. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 55'36" N. lat., 124°10'51" W. long.).
- d. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09" N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat., 124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.
- e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately 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. **Alternative I: 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). 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, 2014 through December 31, 2014 and April 1-30, 2015, license holders may land or possess no more than one Pacific halibut per each three Chinook, except one Pacific halibut may be possessed or landed without meeting the ratio requirement, and no more than 15 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, 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).  
**Alternative III** - 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 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).

TABLE 1. Commercial troll management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 9 of 9)

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

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.

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. Alternative I: 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 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 Mountain, Oregon, to Horse Mountain, California.

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 1 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
<b>ALTERNATIVE I</b>	<b>ALTERNATIVE II</b>	<b>ALTERNATIVE III</b>
<b>North of Cape Falcon</b>	<b>North of Cape Falcon</b>	<b>North of Cape Falcon</b>
<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>
<p>1. Overall non-Indian TAC: 117,500 (non-mark-selective equivalent of 112,500) Chinook and 230,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Recreational TAC: 60,000 (non-mark selective equivalent of 55,000) Chinook and 193,200 marked coho; all retained coho must be marked.</p> <p>3. No Area 4B add-on fishery (C.6).</p> <p>4. Buoy 10 fishery opens August 1 with an expected landed catch of 50,000 marked coho in August and September.</p> <p>5. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.</p>	<p>1. Overall non-Indian TAC: 114,000 (non-mark-selective equivalent of 110,000) Chinook and 210,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Recreational TAC: 58,000 (non-mark selective equivalent of 54,000) Chinook and 176,400 marked coho; all retained coho must be marked.</p> <p>3. No Area 4B add-on fishery (C.6).</p> <p>4. Buoy 10 fishery opens August 1 with an expected landed catch of 60,000 marked coho in August and September.</p> <p>5. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.</p>	<p>1. Overall non-Indian TAC: 95,000 Chinook and 190,000 coho marked with a healed adipose fin clip (marked).</p> <p>2. Recreational TAC: 47,500 Chinook and 159,600 marked coho; all retained coho must be marked.</p> <p>3. No Area 4B add-on fishery(C.6).</p> <p>4. Buoy 10 fishery opens August 1 with an expected landed catch of 70,000 marked coho in August and September.</p> <p>5. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.</p>
<p><b>U.S./Canada Border to Queets River</b></p> <ul style="list-style-type: none"> <li>• May 16-17, May 23-24, and May 31-June 20 or a coastwide marked Chinook quota of 10,000 (C.5).</li> </ul> <p>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).</p>	<p><b>U.S./Canada Border to Queets River</b></p> <ul style="list-style-type: none"> <li>• May 23-24 and June 7-20 or a coastwide marked Chinook quota of 8,000 (C.5).</li> </ul> <p>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).</p>	<p><b>U.S./Canada Border to Queets River</b></p>
<p><b>Queets River to Leadbetter Point</b></p> <ul style="list-style-type: none"> <li>• May 31 through earlier of June 20 or a coastwide marked Chinook quota of 10,000 (C.5).</li> </ul> <p>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).</p>	<p><b>Queets River to Leadbetter Point</b></p> <ul style="list-style-type: none"> <li>• June 7 through earlier of June 20 or a coastwide marked Chinook quota of 8,000 (C.5).</li> </ul> <p>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).</p>	<p><b>Queets River to Leadbetter Point</b></p>

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 2 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Leadbetter Point to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• May 31 through earlier of June 20 or a coastwide marked Chinook quota of 10,000 (C.5).</li> </ul> <p>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).</p>	<p><b>Leadbetter Point to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• June 7 through earlier of June 20 or a coastwide marked Chinook quota of 8,000 (C.5).</li> </ul> <p>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).</p>	<p><b>Leadbetter Point to Cape Falcon</b></p>
<p><b>U.S./Canada Border to Cape Alava (Neah Bay)</b></p> <ul style="list-style-type: none"> <li>• June 21 through earlier of September 21 or 20,090 marked coho subarea quota with a subarea guideline of 6,900 Chinook (C.5).</li> </ul> <p>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).</p>	<p><b>U.S./Canada Border to Cape Alava (Neah Bay)</b></p> <ul style="list-style-type: none"> <li>• June 21 through earlier of September 21 or 18,350 marked coho subarea quota with a subarea guideline of 6,900 Chinook (C.5).</li> </ul> <p>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).</p>	<p><b>U.S./Canada Border to Cape Alava (Neah Bay)</b></p> <ul style="list-style-type: none"> <li>• June 14 through earlier of September 21 or 16,600 marked coho subarea quota with a subarea guideline of 6,600 Chinook (C.5).</li> </ul> <p>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).</p>
<p><b>Cape Alava to Queets River (La Push Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 21 through earlier of September 21 or 4,980 marked coho subarea quota with a subarea guideline of 2,350 Chinook (C.5).</li> <li>• 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.</li> </ul> <p>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).</p>	<p><b>Cape Alava to Queets River (La Push Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 21 through earlier of September 21 or 4,540 marked coho subarea quota with a subarea guideline of 2,350 Chinook (C.5).</li> <li>• 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.</li> </ul> <p>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).</p>	<p><b>Cape Alava to Queets River (La Push Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 14 through earlier of September 21 or 4,100 marked coho subarea quota with a subarea guideline of 2,250 Chinook (C.5).</li> <li>• 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.</li> </ul> <p>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).</p>

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 3 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Queets River to Leadbetter Point (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 21 through earlier of September 30 or 71,480 marked coho subarea quota with a subarea guideline of 27,600 Chinook (C.5).</li> </ul> <p>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).</p>	<p><b>Queets River to Leadbetter Point (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 21 through earlier of September 21 or 65,260 marked coho subarea quota with a subarea guideline of 27,600 Chinook (C.5).</li> </ul> <p>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). Inseason management may be used to sustain season length and keep harvest within the overall Chinook and coho recreational TACs for north of Cape Falcon (C.5).</p>	<p><b>Queets River to Leadbetter Point (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 15 through earlier of September 30 or 59,050 marked coho subarea quota with a subarea guideline of 26,200 Chinook (C.5).</li> </ul> <p>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).</p>
<p><b>Leadbetter Point to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 21 through earlier of September 30 or 96,600 marked coho subarea quota with a subarea guideline of 13,100 Chinook (C.5).</li> </ul> <p>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).</p>	<p><b>Leadbetter Point to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 21 through earlier of September 30 or 88,200 marked coho subarea quota with a subarea guideline of 13,100 Chinook (C.5).</li> </ul> <p>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). 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).</p>	<p><b>Leadbetter Point to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 14 through earlier of September 30 or 79,800 marked coho subarea quota with a subarea guideline of 12,400 Chinook (C.5).</li> </ul> <p>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). 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).</p>

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 4 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
<b>South of Cape Falcon</b>	<b>South of Cape Falcon</b>	<b>South of Cape Falcon</b>
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>
<p>1. Sacramento River Basin recreational fishery catch assumption: 52,866 adult Sacramento River fall Chinook.</p> <p>2. Sacramento River fall Chinook spawning escapement of 324,748 adults.</p> <p>3. Klamath River recreational fishery allocation: 4,145 adult Klamath River fall Chinook.</p> <p>4. Klamath tribal allocation: 27,288 adult Klamath River fall Chinook.</p> <p>5. Overall recreational coho TAC: 80,000 mark-selective coho fishery and 20,000 in the non-mark-selective coho fishery.</p> <p>6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the CFGC.</p>	<p>1. Sacramento River Basin recreational fishery catch assumption: 51,348 adult Sacramento River fall Chinook.</p> <p>2. Sacramento River fall Chinook spawning escapement of 315,423 adults.</p> <p>3. Klamath River recreational fishery allocation: 4,109 adult Klamath River fall Chinook.</p> <p>4. Klamath tribal allocation: 27,296 adult Klamath River fall Chinook.</p> <p>5. Overall recreational coho TAC: 65,000 mark-selective coho fishery and 20,000 in the non-mark-selective coho fishery.</p> <p>6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the CFGC.</p>	<p>1..Sacramento River Basin recreational fishery catch assumption: 52,520 adult Sacramento River fall Chinook.</p> <p>2. Sacramento River fall Chinook spawning escapement of 322,620 adults.</p> <p>3. Klamath River recreational fishery allocation: 4,204 adult Klamath River fall Chinook.</p> <p>4. Klamath tribal allocation: 27,274 adult Klamath River fall Chinook.</p> <p>5. Overall recreational coho TAC: 50,000 mark-selective coho fishery and 20,000 in the non-mark-selective coho fishery.</p> <p>6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the CFGC.</p>
<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>March 15 through October 31 (C.6), except as provided below during the all-salmon mark-selective and non-mark-selective coho fisheries.</li> </ul> <p>Seven days per week. All salmon except coho; two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <ul style="list-style-type: none"> <li><b>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).</b></li> </ul> <p><b>All salmon</b>, 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).</p> <p>In 2015, 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).</p>	<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>March 15 through October 31 (C.6), except as provided below during the all-salmon mark-selective and September non-mark-selective coho fisheries.</li> </ul> <p>Seven days per week. All salmon except coho; two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <ul style="list-style-type: none"> <li><b>Non-mark-selective coho fishery: September 1 through the earlier of September 30 or a landed catch of 20,000 non-mark-selective coho quota (C.5).</b></li> </ul> <p><b>All salmon</b>, 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).</p> <p>In 2015, same as Alternative I</p>	<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>March 15 through October 31 (C.6), except as provided below during the all-salmon mark-selective and non-mark-selective coho fisheries.</li> </ul> <p>Seven days per week. All salmon except coho; two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <ul style="list-style-type: none"> <li><b>Non-mark-selective coho fishery: September 1 through the earlier of September 30 or a landed catch of 20,000 non-mark-selective coho quota (C.5).</b></li> </ul> <p><b>All salmon</b>, 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).</p> <p>In 2015, same as Alternative I</p>
<p>Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).</p>		

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 5 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Cape Falcon to OR/CA Border</b></p> <ul style="list-style-type: none"> <li>All-salmon mark-selective coho fishery: June 21 through earlier of August 10 or a landed catch of 80,000 marked coho.</li> </ul> <p>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. The all salmon except coho season reopens the earlier of August 11 or attainment of the coho quota (C.5).</p> <p>Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).</p>	<p><b>Cape Falcon to OR/CA Border</b></p> <ul style="list-style-type: none"> <li>All-salmon mark-selective coho fishery: June 28 through earlier of August 3 or a landed catch of 65,000 marked coho.</li> </ul> <p>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. The all salmon except coho season reopens the earlier of August 4 or attainment of the coho quota (C.5).</p> <p>Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).</p>	<p><b>Cape Falcon to OR/CA Border</b></p> <ul style="list-style-type: none"> <li>All-salmon mark-selective coho fishery: July 1 through earlier of July 31 or a landed catch of 50,000 marked coho.</li> </ul> <p>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. The all salmon except coho season reopens the earlier of August 1 or attainment of the coho quota (C.5).</p> <p>Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 for specific dates) (C.3.b, C.4.d).</p>
<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>May 1 through September 7 except as provided above during the all-salmon mark-selective coho fishery (C.6).</li> </ul> <p>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).</p>	<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>May 17 through September 7 except as provided above during the all-salmon mark-selective coho fishery (C.6).</li> </ul> <p>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).</p>	<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>May 24 through September 1 except as provided above during the all-salmon mark-selective coho fishery (C.6).</li> </ul> <p>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 20 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p>
<p><b>OR/CA Border to Horse Mt. (California KMZ)</b></p> <ul style="list-style-type: none"> <li>May 1 through September 7 (C.6).</li> </ul> <p>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.</p>	<p><b>OR/CA Border to Horse Mt. (California KMZ)</b></p> <ul style="list-style-type: none"> <li>May 17 through September 7 (C.6).</li> </ul> <p>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.</p>	<p><b>OR/CA Border to Horse Mt. (California KMZ)</b></p> <ul style="list-style-type: none"> <li>May 24 through September 1 (C.6).</li> </ul> <p>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.</p>

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (Page 6 of 9)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>April 5 through November 9.</li> </ul> <p>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).</p> <p>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).</p>	<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>April 5 through November 2.</li> </ul> <p>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).</p> <p>In 2015, same as Alternative I.</p>	<p><b>Horse Mt. to Point Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>April 5 through November 2.</li> </ul> <p>Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 2015, same as Alternative I.</p>
<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>April 5 through November 9.</li> </ul> <p>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 13; 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3).</p> <p>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).</p>	<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>April 5 through November 9.</li> </ul> <p>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).</p> <p>In 2015, same as Alternative I.</p>	<p><b>Point Arena to Pigeon Point (San Francisco)</b></p> <ul style="list-style-type: none"> <li>April 5 through November 9</li> </ul> <p>Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length through July 3; 20 inches thereafter (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 2015, same as Alternative I.</p>
<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>April 5 through October 5.</li> </ul> <p>Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 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).</p>	<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>April 5 through October 5.</li> </ul> <p>Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 2015, same as Alternative I.</p>	<p><b>Pigeon Point to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>April 5 through October 5.</li> </ul> <p>Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 2015, same as Alternative I.</p>
<p>California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the state. (California Fish and Game Code §8226)</p>		

TABLE 2. Recreational management Alternatives adopted by the Council for non-Indian ocean salmon fisheries, 2014. (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	Alt. I & II	24.0	16.0	None
	Alt. III	20.0	16.0	None
OR/CA Border to Horse Mt.	Alt. I & II	24.0	-	24.0
	Alt. III	20.0	-	20.0
Horse Mt. to Pt. Arena	Alt. I & II	20.0	-	20.0
	Alt. III	24.0	-	24.0
Pt. Arena to Pigeon Pt.:	Alt. I ≤ June 13	24.0	-	24.0
	Alt. I ≥ June 14	20.0	-	20.0
	Alt. II ≤ June 30	24.0	-	24.0
	Alt. II ≥ July 1	20.0	-	20.0
	Alt. III ≤ July 3	24.0	-	24.0
	Alt. III ≥ July 4	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. **Alternative I**: 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, 2014. (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 Point 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 Mountain, California, to Point 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 Point 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 Point (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 Mountain 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, 2014. (Page 1 of 2)

<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>		
ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III
<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>	<b>Supplemental Management Information</b>
<p>1. Overall Treaty-Indian TAC: 67,500 Chinook and 60,000 coho.</p> <p>2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries</p>	<p>1. Overall Treaty-Indian TAC: 62,500 Chinook and 55,000 coho.</p> <p>2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries</p>	<p>1. Overall Treaty-Indian TAC: 55,000 Chinook and 47,500 coho.</p> <p>2. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries</p>
<ul style="list-style-type: none"> <li>• May 1 through the earlier of June 30 or 40,500 Chinook quota.</li> </ul> <p>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).</p> <ul style="list-style-type: none"> <li>• July 1 through the earlier of September 15, or 27,000 Chinook quota, or 60,000 coho quota.</li> </ul> <p>All Salmon. See size limit (B) and other restrictions (C).</p>	<ul style="list-style-type: none"> <li>• May 1 through the earlier of June 30 or 36,250 Chinook quota.</li> </ul> <p>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).</p> <ul style="list-style-type: none"> <li>• July 1 through the earlier of September 15, or 26,250 Chinook quota, or 55,000 coho quota.</li> </ul> <p>All salmon. See size limit (B) and other restrictions (C).</p>	<ul style="list-style-type: none"> <li>• May 1 through the earlier of June 30 or 27,500 Chinook quota.</li> </ul> <p>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).</p> <ul style="list-style-type: none"> <li>• July 1 through the earlier of September 15, or 27,500 Chinook quota, or 47,500 coho quota.</li> </ul> <p>All salmon. See size limit (B) and other restrictions (C)</p>

TABLE 3. Treaty Indian troll management Alternatives adopted by the Council for ocean salmon fisheries, 2014. (Page 2 of 2)

<b>B. MINIMUM SIZE (Inches)</b>					
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 2004-2013. 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 4. Chinook and coho harvest quotas and guidelines (\*) for 2014 ocean salmon fishery management Alternatives adopted by the Council.

Fishery or Quota Designation	Chinook for Alternative			Coho for Alternative		
	I	II	III	I	II	III
<b>NORTH OF CAPE FALCON</b>						
<b>TREATY INDIAN OCEAN TROLL<sup>a/</sup></b>						
U.S./Canada Border to Cape Falcon (All Except Coho)	40,500	36,250	27,500	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	27,000	26,250	27,500	60,000	55,000	47,500
Subtotal Treaty Indian Ocean Troll	67,500	62,500	55,000	60,000	55,000	47,500
<b>NON-INDIAN COMMERCIAL TROLL<sup>b/</sup></b>						
U.S./Canada Border to Cape Falcon (All Except Coho)	38,300	37,300	31,700	-	-	-
U.S./Canada Border to Cape Falcon (All Species)	19,200	18,700	15,800	36,800	33,600	30,400
Subtotal Non-Indian Commercial Troll	57,500	56,000	47,500	36,800	33,600	30,400
<b>RECREATIONAL</b>						
U.S./Canada Border to Cape Falcon (All Except Coho) <sup>c/</sup>	10,000 *	8,000 *	-	-	-	-
U.S./Canada Border to Cape Alava <sup>b/</sup>	6,900 *	6,900 *	6,600 *	20,090	18,350	16,600
Cape Alava to Queets River <sup>b/</sup>	2,400 *	2,400 *	2,300 *	5,030	4,590	4,150
Queets River to Leadbetter Pt. <sup>b/</sup>	27,600 *	27,600 *	26,200 *	71,480	65,260	59,050
Leadbetter Pt. to Cape Falcon <sup>b/d/</sup>	13,100 *	13,100 *	12,400 *	96,600	88,200	79,800
Subtotal Recreational	60,000	58,000	47,500	193,200	176,400	159,600
<b>TOTAL NORTH OF CAPE FALCON</b>	<b>185,000</b>	<b>176,500</b>	<b>150,000</b>	<b>290,000</b>	<b>265,000</b>	<b>237,500</b>
<b>SOUTH OF CAPE FALCON</b>						
<b>COMMERCIAL TROLL<sup>a/</sup></b>						
Humbug Mt. to OR/CA Border	3,500	3,000	2,000	-	-	-
OR/CA Border to Humboldt South Jetty	10,000	6,000	3,000	-	-	-
Subtotal Commercial Troll	13,500	9,000	5,000	-	-	-
<b>RECREATIONAL</b>						
Cape Falcon to Oregon/California Border	-	-	-	100,000 <sup>e/</sup>	85,000 <sup>e/</sup>	70,000 <sup>e/</sup>
<b>TOTAL SOUTH OF CAPE FALCON</b>	<b>13,500</b>	<b>9,000</b>	<b>5,000</b>	<b>100,000</b>	<b>85,000</b>	<b>70,000</b>

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 5,000 for Alternative I and 4,000 for Alternative II.

d/ Does not include Buoy 10 fishery. Expected catch in August and September: Alternative I - 50,000 marked coho; Alternative II - 60,000 marked coho; Alternative III - 70,000 marked coho.

e/ The quota consists of both mark-selective and non-mark-selective quotas: 80,000 and 20,000 in Alternative 1; 65,000 and 20,000 in Alternative II; 50,000 and 20,000 in Alternative III, respectively.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2014 ocean fishery Alternatives adopted by the Council.<sup>a/</sup> (Page 1 of 3)

Key Stock/Criteria	Projected Ocean Escapement <sup>b/</sup> or Other Criteria (Council Area Impacts in Parenth)			Spawner Objective or Other Comparative Standard as Noted
	Alternative I	Alternative II	Alternative III	
<b>CHINOOK</b>				
Columbia Upriver Brights	918.0	918.4	919.4	74.0 Minimum ocean escapement to attain 60.0 adults over McNary Dam, with normal distribution and no mainstem harvest.
Mid-Columbia Brights	339.4	339.8	340.2	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	99.8	100.3	102.7	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)	<b>42.0%</b>	<b>41.5%</b>	39.7%	≤ 41.0% Total adult equivalent fishery exploitation rate (2014 NMFS ESA guidance).
Columbia Lower River Wild <sup>c/</sup> (threatened)	33.3	33.3	33.4	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	101.3	103.0	108.2	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	48.5%	49.2%	46.7%	≤ 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 27.3, 27.3, and 27.3 (thousand) adult fish for Yurok and Hoopa Valley tribal fisheries.
Spawner Reduction Rate	47.1%	47.1%	47.1%	≤ 47.1% FMP; equals 36.3, 36.3, and 36.3 (thousand) fewer natural area adult spawners due to fishing.
Adult river mouth return	92.8	92.8	92.9	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	9.3%	8.7%	8.7%	No Council guidance for 2014.
River recreational fishery share	15.2%	15.1%	15.4%	NA Equals 4.1, 4.1, and 4.2 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	15.4%	15.4%	15.4%	≤ 15.4% Age-3 ocean impact rate in fisheries south of Pt. Arena. In addition, the following season restrictions apply: <u>Recreational</u> - Pt. Arena to Pigeon Pt. between the first Saturday in April and the second Sunday in November; Pigeon Pt. to the U.S./Mexico Border between the first Saturday in April and the first Sunday in October. Minimum size limit ≥ 20 inches total length. <u>Commercial</u> - Pt. Arena to the U.S./Mexico border between May 1 and September 30, except Pt. Reyes to Pt. San Pedro between October 1 and 15 (Monday-Friday). Minimum size limit ≥ 26 inches total length (NMFS 2014 ESA Guidance).

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2014 ocean fishery Alternatives adopted by the Council.<sup>a/</sup> (Page 2 of 3)

Key Stock/Criteria	Projected Ocean Escapement <sup>b/</sup> or Other Criteria (Council Area Impacts in Parens)			Spawner Objective or Other Comparative Standard as Noted
	Alternative I	Alternative II	Alternative III	
Sacramento River Fall	324.7	315.4	322.6	≥ 190.4 2014 pre-season ACL.
Sacramento Index exploitation rate	48.8%	50.3%	49.2%	≤ 70.0% FMP.
Ocean commercial impacts	179.0	191.2	183.5	All Alternatives include fall (Sept-Dec) 2013 impacts (35.3 thousand SRFC).
Ocean recreational impacts	78.0	76.6	76.1	All Alternatives include fall 2013 impacts (3.8 thousand SRFC).
River recreational impacts	52.9	51.3	52.5	No guidance in 2014.
Hatchery spawner goal	Met	Met	Met	22.0 Aggregate number of adults to achieve egg take goals at Coleman, Feather River, and Nimbus hatcheries.
<b>COHO</b>				
Interior Fraser (Thompson River)	<b>12.2% (5.4%)</b>	<b>11.7% (5.0%)</b>	<b>11.1% (4.4%)</b>	≤ 10.0% 2014 Southern U.S. exploitation rate ceiling; PSC coho agreement.
Skagit	39.1% (5.3%)	38.0% (4.8%)	38.4% (4.3%)	≤ 60.0% 2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Stillaguamish	32.8% (3.5%)	32.1% (3.2%)	32.3% (2.9%)	≤ 50.0% 2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Snohomish	31.2% (3.6%)	30.6% (3.2%)	30.7% (2.9%)	≤ 60.0% 2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Hood Canal	56.0% (5.7%)	54.6% (5.2%)	55.4% (4.6%)	≤ 65.0% 2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Strait of Juan de Fuca	14.6% (4.6%)	13.1% (4.2%)	13.8% (3.8%)	≤ 40.0% 2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Quillayute Fall	16.9	17.0	17.1	6.3 FMP MSY adult spawner estimate <sup>d/</sup> . Value depicted is ocean escapement.
Hoh	7.4	7.5	7.6	2.5 FMP MSY adult spawner estimate <sup>d/</sup> . Value depicted is ocean escapement.
Queets Wild	7.8	8.0	8.1	5.8 FMP MSY adult spawner estimate <sup>d/</sup> . Value depicted is ocean escapement.
Grays Harbor	95.9	96.6	97.4	24.4 FMP MSY adult spawner estimate <sup>d/</sup> . Value depicted is ocean escapement.
Lower Columbia River Natural (threatened)	14.9%	13.4%	11.9%	≤ 22.5% Total marine and mainstem Columbia River fishery exploitation rate (2014 NMFS ESA guidance). Value depicted is ocean fishery exploitation rate only. Bolded values identify ocean exploitation rates that, when combined with 2013 freshwater harvest rates, will exceed the total allowable exploitation rate of 22.5 percent.
Upper Columbia <sup>e/</sup>	>50%	>50%	>50%	≥ 50% Minimum percentage of the run to Bonneville Dam.
Columbia River Hatchery Early	316.9	326.3	335.6	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	255.6	268.9	282.7	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 <sup>b/</sup>	25.3% <sup>f/</sup>	21.5%	20.4%	≤ 30.0% Marine and freshwater fishery exploitation rate (NMFS ESA consultation standard).
Southern Oregon/Northern California Coast (threatened)	7.1%	6.7%	6.3%	≤ 13.0% Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard).

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TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2014 ocean fishery Alternatives analyzed by the STT.<sup>a/</sup> (Page 3 of 3)

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a/ Projections in the table assume a WCVI mortality for coho of the 2013 preseason level. Chinook fisheries in Southeast Alaska, North Coast BC, and WCVI troll and outside sport fisheries were assumed to have the same exploitation rates as expected preseason in 2013, 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 2014 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 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. 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/ Includes projected impacts of inriver fisheries that have not yet been shaped.

f/ Modeled as if 35,000 of the marked coho quota was rolled into the 20,000 non-mark-selective coho quota. The resulting 40,300 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 2.5 percent.

TABLE 6. Preliminary projections of Chinook and coho harvest impacts for 2014 ocean salmon fishery management Alternatives adopted by the Council. (Page 1 of 2)

Area and Fishery	2014 Catch Projection			2014 Bycatch Mortality <sup>d/</sup> Projection			2014 Bycatch Projection <sup>b/</sup>			Observed in 2013	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
<b>OCEAN FISHERIES<sup>c/</sup>:</b>											
<b>CHINOOK (thousands of fish)</b>											
<b>NORTH OF CAPE FALCON</b>											
Treaty Indian Ocean Troll	67.5	62.5	55.0	16.8	15.4	13.0	56.1	51.3	43.1	50.0	7.2
Non-Indian Commercial Troll	57.5	56.0	47.5	26.7	26.0	22.0	96.5	93.9	79.5	41.9	11.5
Recreational	60.0	58.0	47.5	15.1	14.3	10.7	89.6	84.6	61.7	30.8	4.6
<b>CAPE FALCON TO HUMBUG MT.</b>											
Commercial Troll	108.0	138.8	138.8	13.9	17.9	17.9	34.3	44.1	44.1	104.0	19.1
Recreational	10.7	9.5	9.0	1.0	0.9	0.9	3.3	2.9	2.8	18.0	2.1
<b>HUMBUG MT. TO HORSE MT.</b>											
Commercial Troll	14.4	9.9	5.9	1.9	1.3	0.8	4.6	3.2	1.9	16.9	2.2 <sup>d/</sup>
Recreational	22.2	20.5	18.6	2.1	2.0	1.8	6.8	6.3	5.7	44.3	4.3 <sup>d/</sup>
<b>SOUTH OF HORSE MT.</b>											
Commercial	158.0	171.8	163.9	20.4	22.2	21.2	50.2	54.6	52.1	287.3	37.1 <sup>d/</sup>
Recreational	80.7	80.7	80.7	7.8	7.8	7.8	22.3	22.3	22.3	79.4	7.6 <sup>d/</sup>
<b>TOTAL OCEAN FISHERIES</b>											
Commercial Troll	405.4	439.1	411.1	79.7	82.8	74.9	241.7	247.1	220.7	500.1	77.1
Recreational	173.6	168.7	155.8	26.1	25.0	21.1	122.0	116.1	92.5	172.6	18.7
<b>INSIDE FISHERIES:</b>											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	22.6	2.8 <sup>d/</sup>

TABLE 6. Preliminary projections of Chinook and coho harvest impacts for 2014 ocean salmon fishery management Alternatives adopted by the Council. (Page 2 of 2)

Area and Fishery	2014 Catch Projection			2014 Bycatch Mortality <sup>a/</sup> Projection			2014 Bycatch Projection <sup>b/</sup>			Observed in 2013	
	I	II	III	I	II	III	I	II	III	Catch	Bycatch Mortality
<b>COHO (thousands of fish)</b>											
<b>NORTH OF CAPE FALCON</b>											
Treaty Indian Ocean Troll <sup>e/</sup>	60.0	55.0	47.5	4.9	4.4	3.7	10.2	9.0	7.7	47.7	3.5
Non-Indian Commercial Troll <sup>e/</sup>	36.8	33.6	30.4	16.2	14.7	12.9	53.4	48.5	42.4	6.5	7.2
Recreational <sup>e/</sup>	193.2	176.4	159.6	33.8	30.5	26.5	144.7	129.9	110.6	50.2	13.5
<b>SOUTH OF CAPE FALCON</b>											
Commercial Troll	-	-	-	12.9	12.6	12.6	49.7	48.6	48.4	0.0	8.7
Recreational <sup>e/</sup>	100.0	85.0	70.0	27.1	22.8	19.1	125.2	106.1	89.6	10.3	5.9
<b>TOTAL OCEAN FISHERIES</b>											
Commercial Troll	96.8	88.6	77.9	34.0	31.7	29.2	113.3	106.1	98.5	54.2	19.4
Recreational	293.2	261.4	229.6	60.9	53.3	45.6	269.9	236.0	200.2	60.5	19.4
<b>INSIDE FISHERIES:</b>											
Area 4B	-	-	-	-	-	-	-	-	-	-	-
Buoy 10	50.0	60.0	70.0	8.1	9.5	10.9	29.8	34.7	39.4	7.6	1.3 <sup>d/</sup>

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

Commercial: 26%.

Recreational, north of Pt. Arena: 14%.

Recreational, south of Pt. Arena: 17% (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 2014 ocean fisheries management Alternatives adopted by the Council.

Fishery	Exploitation Rate (Percent)											
	LCN Coho			OCN Coho			RK Coho			LCR Tule Chinook		
	I	II	III	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	2.0%	2.0%
BRITISH COLUMBIA	0.1%	0.1%	0.1%	0.3%	0.3%	0.3%	0.0%	0.0%	0.0%	12.8%	12.8%	13.0%
PUGET SOUND/STRAIT	0.2%	0.2%	0.2%	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	2.4%	2.2%	2.0%	0.5%	0.5%	0.4%	0.0%	0.0%	0.0%	6.5%	6.0%	5.2%
Recreational	5.8%	5.2%	4.6%	1.0%	0.9%	0.8%	0.0%	0.0%	0.0%	3.4%	3.3%	2.9%
Non-Indian Troll	2.0%	1.8%	1.6%	0.5%	0.4%	0.4%	0.0%	0.0%	0.0%	7.4%	7.2%	6.1%
SOUTH OF CAPE FALCON												
Recreational:												
Cape Falcon to Humbug Mt.	3.3%	2.9%	2.5%	10.9%	7.3%	6.5%	0.7%	0.5%	0.3%	0.1%	0.1%	0.1%
Humbug Mt. to OR/CA border (KMZ)	0.1%	0.1%	0.1%	0.4%	0.4%	0.3%	1.0%	0.9%	0.7%			
OR/CA border to Horse Mt. (KMZ)	0.1%	0.0%	0.0%	0.4%	0.4%	0.4%	1.9%	1.9%	1.7%			
Fort Bragg	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	1.1%	1.1%	1.1%			
South of Pt. Arena	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.7%	0.7%	0.7%	1.6%	1.7%	1.7%
Troll:												
Cape Falcon to Humbug Mt.	0.7%	0.7%	0.7%	0.9%	0.8%	0.8%	0.1%	0.1%	0.1%			
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
OR/CA border to Horse Mt. (KMZ)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.1%			
Fort Bragg	0.0%	0.0%	0.0%	0.4%	0.4%	0.4%	1.0%	0.9%	1.0%			
South of Pt. Arena	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%			
BUOY 10	1.7%	2.0%	2.3%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	7.9%	8.0%	8.2%
ESTUARY/FRESHWATER	N/A	N/A	N/A	8.9%	8.9%	8.9%	0.2%	0.2%	0.2%			
<b>TOTAL</b>	<b>14.9%</b>	<b>13.4%</b>	<b>11.9%</b>	<b>25.3%<sup>a/</sup></b>	<b>21.5%</b>	<b>20.4%</b>	<b>7.1%</b>	<b>6.7%</b>	<b>6.3%</b>	<b>42.0%</b>	<b>41.5%</b>	<b>39.7%</b>

a/ Modeled as if 35,000 of the marked coho quota was rolled into the 20,000 non-mark-selective coho quota. The resulting 40,300 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 2.5 percent for a total exploitation rate of 25.3 percent.

TABLE 8. Projected coho mark rates for 2014 fisheries under base period fishing patterns (percent marked).

Area	Fishery	June	July	August	Sept
Canada					
Johnstone Strait	Recreational	-	26%	20%	-
West Coast Vancouver Island	Recreational	45%	23%	20%	19%
North Georgia Strait	Recreational	41%	42%	42%	37%
South Georgia Strait	Recreational	40%	48%	41%	42%
Juan de Fuca Strait	Recreational	46%	46%	47%	42%
Johnstone Strait	Troll	49%	37%	26%	29%
NW Vancouver Island	Troll	32%	29%	29%	32%
SW Vancouver Island	Troll	44%	41%	43%	45%
Georgia Strait	Troll	50%	49%	51%	45%
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	59%	50%	49%	49%
Strait of Juan de Fuca (Area 6)	Recreational	56%	47%	49%	45%
San Juan Island (Area 7)	Recreational	33%	48%	46%	36%
North Puget Sound (Areas 6 & 7A)	Net	-	51%	45%	42%
Council Area					
Neah Bay (Area 4/4B)	Recreational	40%	56%	51%	58%
LaPush (Area 3)	Recreational	65%	60%	66%	42%
Westport (Area 2)	Recreational	72%	70%	67%	62%
Columbia River (Area 1)	Recreational	78%	77%	73%	75%
Tillamook	Recreational	70%	65%	60%	48%
Newport	Recreational	66%	61%	58%	43%
Coos Bay	Recreational	57%	53%	41%	27%
Brookings	Recreational	51%	37%	32%	10%
Neah Bay (Area 4/4B)	Troll	51%	51%	53%	56%
LaPush (Area 3)	Troll	52%	58%	54%	55%
Westport (Area 2)	Troll	56%	60%	65%	60%
Columbia River (Area 1)	Troll	72%	72%	69%	69%
Tillamook	Troll	65%	63%	64%	60%
Newport	Troll	63%	61%	58%	57%
Coos Bay	Troll	56%	53%	47%	32%
Brookings	Troll	43%	45%	48%	63%
Columbia River					
Buoy 10	Recreational	-	-	-	74%

TABLE 9. Preliminary projected exvessel value under Council-adopted 2014 non-Indian commercial troll regulatory Alternatives compared to 2013 and the 2009-2013 average (in inflation adjusted dollars).

Management Area	Alternative	Exvessel Value (thousands of dollars) <sup>a/</sup>				
		2014 Projected <sup>b/</sup>	2013 Actual	Percent Change from 2013	2009-2013 Average <sup>c/</sup>	Percent Change From 2009-2013 Average
North of Cape Falcon	I	3,878	2,967	+31%	2,695	+44%
	II	3,753		+26%		+39%
	III	3,203		+8%		+19%
Cape Falcon to Humbug Mt.	I	7,231	7,028	+3%	2,976	+143%
	II	9,292		+32%		+212%
	III	9,292		+32%		+212%
Humbug Mt. to Humboldt S. Jetty	I	858	1,107	-22%	412	+109%
	II	591		-47%		+44%
	III	353		-68%		-14%
Horse Mt. to Pt. Arena	I	2,921	8,657	-66%	2,932	-0%
	II	2,939		-66%		+0%
	III	2,949		-66%		+1%
South of Pt. Arena	I	7,363	14,298	-49%	5,616	+31%
	II	8,270		-42%		+47%
	III	7,730		-46%		+38%
Total South of Cape Falcon	I	18,373	31,089	-41%	11,936	+54%
	II	21,093		-32%		+77%
	III	20,324		-35%		+70%
West Coast Total	I	22,250	34,057	-35%	14,631	+52%
	II	24,845		-27%		+70%
	III	23,527		-31%		+61%

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, 2013 exvessel prices and 2013 average weight per fish.

c/ Values are inflation-adjusted to 2013 dollars.

TABLE 10. Preliminary projected angler trips and coastal community income impacts generated under Council-adopted 2014 recreational ocean salmon fishery regulatory Alternatives compared to 2013 and the 2009-2013 average (in inflation adjusted dollars).

Management Area	Alternative	Angler Trips (thousands)			Community Income Impacts (thousands of dollars) <sup>a/</sup>			Percent Change in Income Impacts	
		Estimates Based on the	2013	2009-2013	Estimates	2013	2009-2013	Compared to	Compared to
		Options	Actual	Avg.	Options	Actual	Avg.	2013 Actual	2009-2013 Avg.
North of Cape Falcon	I	156	83	89	15,628	8,316	8,734	+88%	+79%
	II	141			14,070			+69%	+61%
	III	115			11,456			+38%	+31%
Cape Falcon to Humbug Mt.	I	66	60	48	3,839	3,483	2,970	+10%	+29%
	II	57			3,309			-5%	+11%
	III	54			3,109			-11%	+5%
Humbug Mt. to Horse Mt.	I	44	50	29	2,531	2,868	1,597	-12%	+58%
	II	41			2,341			-18%	+47%
	III	36			2,079			-28%	+30%
Horse Mt. to Pt. Arena	I	21	17	11	1,668	1,369	826	+22%	+102%
	II	21			1,665			+22%	+102%
	III	21			1,665			+22%	+102%
South of Pt. Arena	I	109	97	60	9,936	8,832	5,303	+12%	+87%
	II	109			9,936			+12%	+87%
	III	109			9,936			+12%	+87%
Total South of Cape Falcon	I	240	224	147	17,973	16,552	10,696	+9%	+68%
	II	228			17,251			+4%	+61%
	III	220			16,789			+1%	+57%
West Coast Total	I	396	307	236	33,602	24,867	19,431	+35%	+73%
	II	368			31,321			+26%	+61%
	III	334			28,245			+14%	+45%

a/ Income impacts are not comparable to the exvessel values shown in Table 9. All dollar values are inflation-adjusted to 2013 dollars.

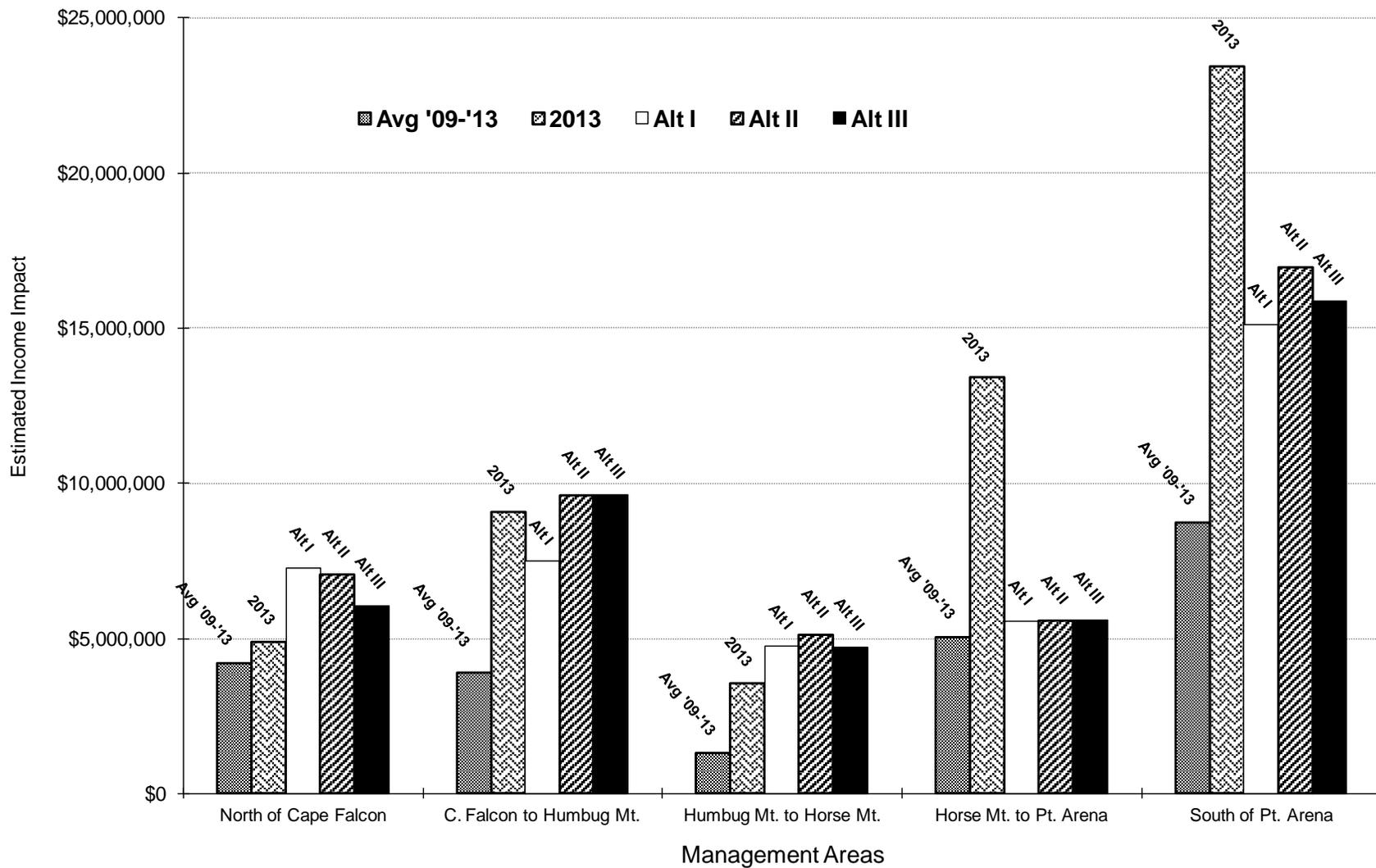


FIGURE 1. Projected community income impacts associated with the Council adopted 2014 commercial fishery Alternatives compared to 2013 and the 2009-2013 average (in inflation adjusted dollars).

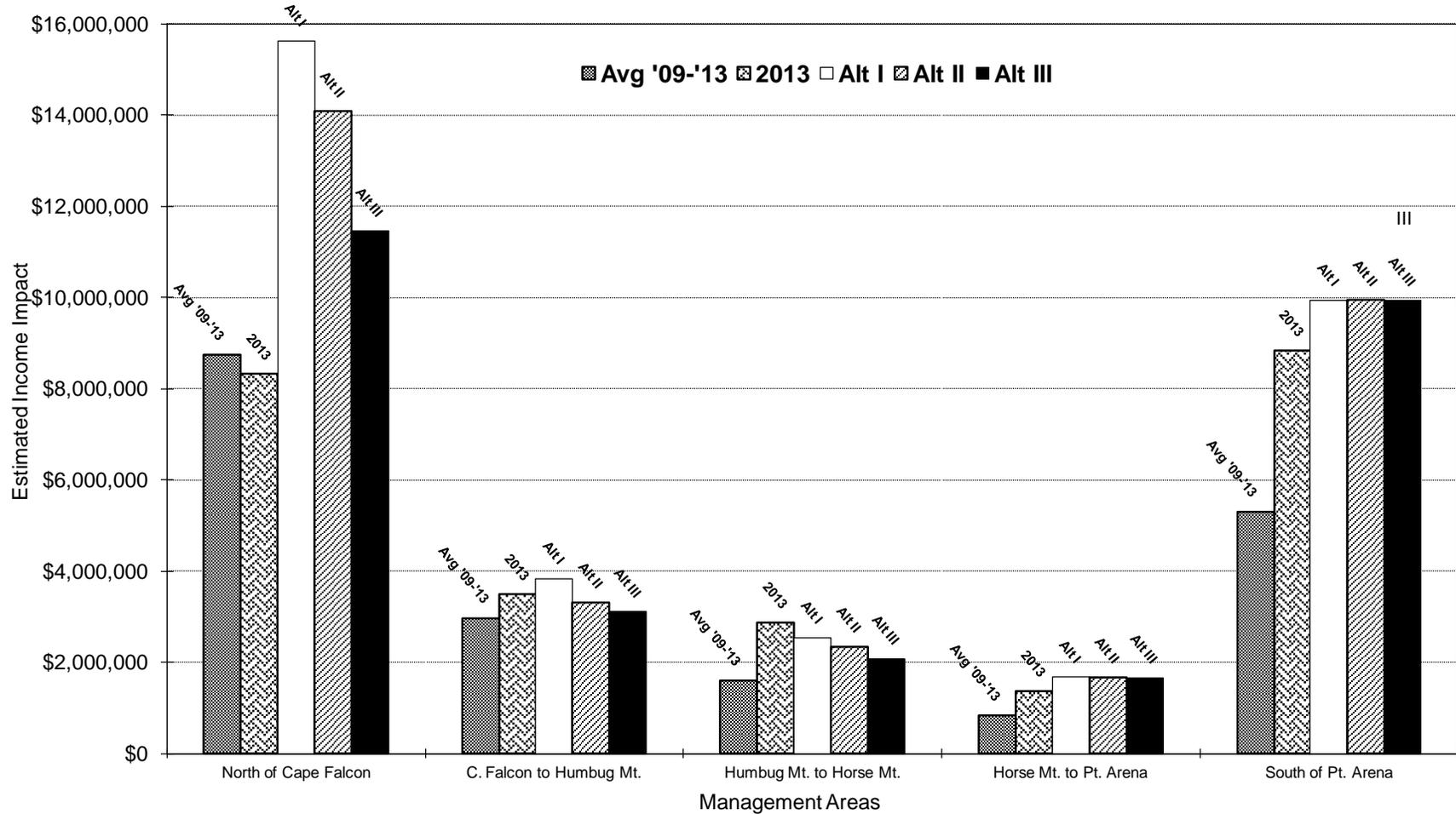


FIGURE 2. Projected community income impacts associated with the Council adopted 2014 recreational fishery Alternatives compared to 2013 and the 2009-2013 average (in inflation adjusted dollars).

## 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 2014 fishing season alternatives. The impacts are displayed as a percent for each Alternative by fishery, port area, and month. Max rate: 15.4

Commercial										Recreational											
Alternative I 15.4 Total										Alternative I											
Port Area	May	Jun	Jul	2014			Oct	Nov	Dec	Year Total	Port Area	Apr	May	Jun	2014			Oct	Nov	Dec	Year Total
				Aug	Sep									Jul	Aug	Sep					
SF	0.21	0.71	0.32	0.16	0.01	0.00				1.41	SF	0.17	0.39	1.30	2.07	0.63	0.06	0.18	0.03		4.82
MO	0.45	0.80	0.28	0.72	0.16					2.40	MO	1.00	0.56	1.46	2.75	0.96	0.09	0.00			6.83
<b>Total</b>	<b>0.66</b>	<b>1.51</b>	<b>0.60</b>	<b>0.88</b>	<b>0.16</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>3.81</b>	<b>Total</b>	<b>1.17</b>	<b>0.95</b>	<b>2.76</b>	<b>4.82</b>	<b>1.59</b>	<b>0.15</b>	<b>0.18</b>	<b>0.03</b>	<b>0.00</b>	<b>11.64</b>
Alternative II 15.4 Total										Alternative II											
SF	0.21	1.03	0.32	0.17	0.01	0.00				1.73	SF	0.17	0.39	0.95	2.05	0.63	0.06	0.18	0.03		4.45
MO	0.45	1.39	0.27	0.32	0.00					2.43	MO	1.00	0.56	1.46	2.74	0.95	0.09	0.00			6.81
<b>Total</b>	<b>0.66</b>	<b>2.41</b>	<b>0.59</b>	<b>0.49</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>4.16</b>	<b>Total</b>	<b>1.17</b>	<b>0.95</b>	<b>2.41</b>	<b>4.79</b>	<b>1.58</b>	<b>0.15</b>	<b>0.18</b>	<b>0.03</b>	<b>0.00</b>	<b>11.25</b>
Alternative III 15.4 Total										Alternative III											
SF	0.21	0.84	0.32	0.16	0.01	0.00				1.54	SF	0.17	0.39	0.95	2.02	0.63	0.06	0.18	0.03		4.42
MO	0.45	1.00	0.28	0.72	0.16					2.60	MO	1.00	0.56	1.46	2.75	0.96	0.09	0.00			6.83
<b>Total</b>	<b>0.66</b>	<b>1.84</b>	<b>0.60</b>	<b>0.88</b>	<b>0.16</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>4.14</b>	<b>Total</b>	<b>1.17</b>	<b>0.95</b>	<b>2.41</b>	<b>4.77</b>	<b>1.59</b>	<b>0.15</b>	<b>0.18</b>	<b>0.03</b>	<b>0.00</b>	<b>11.25</b>

TABLE A-2. Klamath River fall Chinook age-4 ocean harvest by fishery and Alternative. In 2014, a harvest of 10,779 age-4 KRFC results in a 16% ocean harvest rate.

Commercial												Recreational											
Alternative I 16.0% Total												Alternative I											
Port Area	Fall 2013			Summer 2014					Summer Total	Year Total	Port Area	Fall 2013			Summer 2014					Summer Total	Year Total		
	Sept	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			Sept	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			
NO					92	191	65	61	176	585	585	NO							8	4		12	12
CO	1,164	488			237	305	222	335	579	1,678	3,330	CO	155				1	10	19	12		43	198
KO						24	96	90	42	252	252	KO	28				2	19	44	149		214	242
KC												KC					83	117	106	196		502	502
FB							1,275	1,751	629	3,655	3,655	FB				2	19	45	58	14		137	137
SF						329	541	548	82	1,500	1,500	SF				20	13	47	45	2		126	126
MO						87	58	50	1	196	196	MO				15	3	5	10	1		35	35
<b>Total</b>	<b>1,164</b>	<b>488</b>			<b>329</b>	<b>937</b>	<b>2,257</b>	<b>2,835</b>	<b>1,508</b>	<b>7,866</b>	<b>9,518</b>	<b>Total</b>	<b>183</b>			<b>37</b>	<b>121</b>	<b>244</b>	<b>289</b>	<b>377</b>	<b>1,069</b>	<b>1,252</b>	
<b>14.1%</b>												<b>1.9%</b>											
Alternative II 16.0% Total												Alternative II											
Port Area	Fall 2013			Summer 2014					Summer Total	Year Total	Port Area	Fall 2013			Summer 2014					Summer Total	Year Total		
	Sept	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			Sept	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			
NO					92	191	65	51	176	576	576	NO							8	2		10	10
CO	1,164	488			237	305	222	280	579	1,624	3,276	CO	155				1	6	19	10		37	192
KO						24	96	45	42	207	207	KO	28				1	19	44	149		213	241
KC												KC					40	117	106	196		460	460
FB							1,106	1,748	681	3,535	3,535	FB				2	19	45	58	14		137	137
SF						329	781	547	86	1,743	1,743	SF				20	13	47	44	2		126	126
MO						87	101	50		239	239	MO				15	3	5	10	1		35	35
<b>Total</b>	<b>1,164</b>	<b>488</b>			<b>329</b>	<b>937</b>	<b>2,371</b>	<b>2,722</b>	<b>1,565</b>	<b>7,924</b>	<b>9,576</b>	<b>Total</b>	<b>183</b>			<b>37</b>	<b>77</b>	<b>240</b>	<b>289</b>	<b>375</b>	<b>1,017</b>	<b>1,200</b>	
<b>14.2%</b>												<b>1.8%</b>											
Alternative III 16.0% Total												Alternative III											
Port Area	Fall 2013			Summer 2014					Summer Total	Year Total	Port Area	Fall 2013			Summer 2014					Summer Total	Year Total		
	Sept	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			Sept	Oct	Nov-Dec	Mar	Apr	May	Jun	Jul	Aug			
NO					92	191	66	51	176	575	575	NO							8	2		9	9
CO	1,164	488			237	305	222	280	579	1,624	3,276	CO	155				1	4	19	10		34	189
KO						24	64	45	42	175	175	KO	28				1	19	44	149		212	240
KC												KC					21	117	106	196		441	441
FB							1,362	1,747	629	3,738	3,738	FB				2	19	45	57	14		137	137
SF						329	643	547	82	1,601	1,601	SF				20	13	47	44	2		126	126
MO						87	73	50	1	211	211	MO				15	3	5	10	1		35	35
<b>Total</b>	<b>1,164</b>	<b>488</b>			<b>329</b>	<b>937</b>	<b>2,429</b>	<b>2,720</b>	<b>1,509</b>	<b>7,924</b>	<b>9,576</b>	<b>Total</b>	<b>183</b>			<b>37</b>	<b>58</b>	<b>238</b>	<b>289</b>	<b>373</b>	<b>995</b>	<b>1,178</b>	
<b>14.2%</b>												<b>1.7%</b>											

## 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. 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**

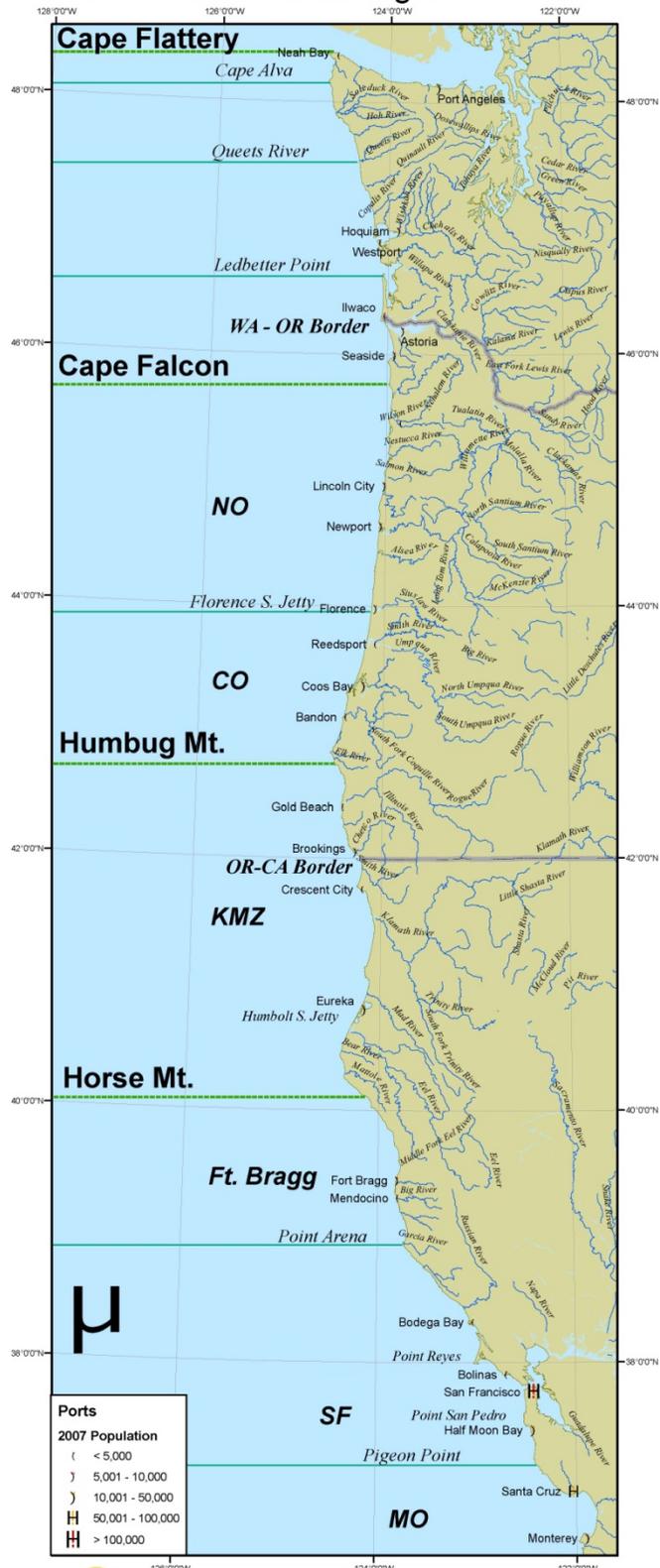
This document constitutes the National Marine Fisheries Service's (NMFS) biological opinion regarding the effects of the 2008-2009 Pacific coast salmon fisheries on the Southern Resident killer whale distinct population segment. The fisheries assessed by this Opinion are fisheries are managed under the

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



0 25 50 100 km  
 Projection: UTM Zone 10, NAD83

Andrew Weiss  
 Fish Program  
 Biological Data Systems  
 Feb. 2009

# ENVIRONMENTAL ASSESSMENT PART 3 FOR 2014 OCEAN SALMON FISHERY REGULATIONS

REGULATION IDENTIFIER NUMBER 0648-XD072

BASED ON

## PRESEASON REPORT III\* COUNCIL ADOPTED MANAGEMENT MEASURES



**Pacific Fishery Management Council**  
**7700 NE Ambassador Place, Suite 101**  
**Portland, OR 97220-1384**  
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**APRIL 2014**

\* Modifications from the original PFMC document are indicated in red.

# ACKNOWLEDGMENTS

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The Salmon Technical Team notes that Ms. Melodie Palmer-Zwahlen's tenure on the STT will end shortly with her retirement. Ms. Palmer-Zwahlen has been a tireless contributor to salmon fishery management for many years both as a member of the Salmon Technical Team as well as an employee of the California Department of Fish and Wildlife. Her expertise, energy, and enthusiasm will certainly be missed.

The Salmon Technical Team and the Council staff express their thanks for the expert assistance provided by Ms. Wendy Beeghley, Ms. Angelika Hagen-Breaux and Dr. Pete McHugh, Washington Department of Fish and Wildlife; Mr. Brett Kormos and Ms. Jennifer Simon, California Department of Fish and Wildlife, Mr. Eric Schindler, Oregon Department of Fish and Wildlife; Mr. Andy Rankis, Northwest Indian Fisheries Commission; Mr. Ed Waters, economist on contract with Pacific Fishery Management Council, and numerous other agency and tribal personnel in completing this report.

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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
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

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## 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 2014 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 2014 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 2014c) presented a statement of the purpose and need, a description of the affected environment, a description of 2014 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 2014b) 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 2014 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

The following figures and tables describe the Council-adopted management measures covering the period from May 1, 2014, to April 30, 2015:

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

In addition, Tables 5, 6, and 7 provide information on the biological impacts and landing estimates for the Council's management recommendations. Table 8 displays the expected mark (healed adipose fin-clip) rate for coho encountered in Council adopted mark-selective fisheries. Tables 9 and 10, and Figures 3 and 4, provide information on the economic impacts of the proposed fisheries. Table 11 summarizes environmental effects of the Proposed Action and Alternatives.

The 2014 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 Lower Columbia natural (LCN) coho north of the Oregon/California border, and (5) Upper 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 2014-2015 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, 2015, if necessary to meet 2015 management objectives.
8. Closing California recreational fisheries scheduled to open April 4, 2015, or commercial fisheries scheduled to open April 16, 2015, if necessary to meet 2015 management objectives.

Management measures were modeled to assess fishery impacts from a potential rollover of coho from the June 21 through August 10 Cape Falcon to Oregon/California border mark-selective recreational fishery to the August 30 through September 30 Cape Falcon to Humbug Mountain non-mark-selective recreational fishery in September. Impacts were modeled as if 35,000 of the marked coho quota was rolled into the 20,000 non-mark-selective coho quota. The resulting 40,300 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 2.5 percent for a total exploitation rate of 25.3 percent. The primary purpose of this preseason modeling exercise was to quantify the maximum impacts of a potential inseason rollover action to ensure that impacts would remain neutral on the most limiting stock (LCN coho), would remain under the preseason expected exploitation rate for OCN coho (25.3 percent), and would meet the OCN coho ESA consultation standard of less than 30.0 percent. The actual inseason rollover may be substantially lower than 35,000 marked coho resulting in an OCN impact less than modeled.

If at least 35,000 coho are available for the August 30 through September 30 recreational non-mark-selective coho salmon season quota between Cape Falcon and Humbug Mountain (a combination of the initial quota of 20,000 and impact neutral rollover from the recreational mark-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 Mountain. The intent is to provide non-mark-selective incidental coho retention in the Chinook-directed troll season in this area from September 3 through September 30 or until the quota is exhausted. Landing week limits and coho per Chinook ratios may be adjusted inseason.

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 2014.

## 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 defers to NMFS consultation standards for salmon stocks listed under the ESA in regards to biological conservation objectives. 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 2014 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 listed 17 Evolutionarily Significant Units (ESUs) of salmon under the ESA:

ESU	Status	Federal Register Notice			
		Most Recent		Original Listing	
<b>Chinook</b>					
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
Lower Columbia River	Threatened	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
Upper Willamette River	Threatened	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
Upper Columbia River Spring	Endangered	76 FR 50448	8/15/2011	64 FR 14308	3/24/1999
Central Valley Spring	Threatened	76 FR 50447	8/15/2011	64 FR 50394	9/16/1999
California Coastal	Threatened	76 FR 50447	8/15/2011	64 FR 50394	9/16/1999
<b>Chum</b>					
Hood Canal Summer-Run	Threatened	76 FR 50448	8/15/2011	64 FR 14508	3/25/1999
Columbia River	Threatened	76 FR 50448	8/15/2011	64 FR 14508	3/25/1999
<b>Coho</b>					
Central California Coastal	Endangered	76 FR 50447	8/15/2011	61 FR 56138	10/31/1996
S. Oregon/ N. California Coastal	Threatened	76 FR 50447	8/15/2011	62 FR 24588	5/6/1997
Oregon Coastal	Threatened	76 FR 50448	8/15/2011	63 FR 42587	8/10/1998
Lower Columbia River	Threatened	76 FR 50448	8/15/2011		
<b>Sockeye</b>					
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 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)
4/28/2008	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 4, 2014, NMFS provided guidance on protective measures for species listed under the ESA during the 2014 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 2014 management season, as well as further guidance and recommendations for the 2014 management season.

The ESA consultation standards, exploitation rates, and other criteria in place for the 2014 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:

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<b>Chinook</b>	
Snake River spring/summer (threatened)	Puget Sound (threatened)
Upper Willamette (threatened)	Upper Columbia River spring (endangered)
<b>Sockeye</b>	
Snake River (endangered)	Ozette Lake Sockeye (threatened)
<b>Chum</b>	
Columbia River (threatened)	Hood Canal summer (threatened)
<b>Steelhead</b>	
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)	

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## 5.0 OBLIGATIONS UNDER THE PACIFIC SALMON TREATY

In 1985, the PST was signed, setting long-term goals for the benefit of the shared salmon resources of the United States and Canada. The 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 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 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 2014 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 pre-season 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 2014, Puget Sound and Washington coast coho constraints are as follows:

**PST Southern Coho Management Plan**

U.S. Management Unit	Total Exploitation Rate Constraint <sup>b/</sup>	Categorical Status <sup>c/</sup>
Skagit	60%	Abundant
Stillaguamish	50%	Abundant
Snohomish	60%	Abundant
Hood Canal	65%	Abundant
Strait of Juan de Fuca	40%	Moderate
Quillayute Fall <sup>c/</sup>		Moderate
Hoh <sup>c/</sup>		Abundant
Queets <sup>c/</sup>		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 PST Southern Coho Management Plan.

c/ Categories (abundant, moderate, low) correspond to the general exploitation rate ranges depicted in paragraph 3(a) of the 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 2014 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, 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 (in previous years, Canadian fisheries were managed so as not to exceed a three percent maximum exploitation rate).

The projected status of Canadian coho management units in 2014 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 2014 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 2014 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 225,100, which is higher than the 2013 preseason expectation of 126,000. The 2014 LRH forecast abundance is 110,000, higher than the forecast of 88,000 in 2013. The 2014 SCH forecast abundance is 115,100, which is higher than last year's forecast of 38,000.

Beginning in 1999, most of Area 4 along the northern Washington coast was closed to non-treaty commercial fishing to reduce impacts to Puget Sound Chinook stocks. This closure occurred after the FRAM base-period and has remained in effect since it was initially implemented. Because no information was available to assess the reduction in impacts from this closure, no adjustments to the FRAM base period were made in 1999 or thereafter until this year. Based on analysis by the Tribal and Washington Technical Group of coded-wire tag data from indicator stocks from Puget Sound comparing contributions from pre and post closure periods, impacts in the non-Treaty troll fishery in areas 3 and 4 were discounted by 25 percent.

#### 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 in the adopted management measures is equal to the 41.0 percent maximum for 2014. LCR tules are the constraining Chinook stock for fisheries north of Cape Falcon in 2014.
- *LRW fall Chinook:* The adopted management measures have a projected ocean escapement of 33,400 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 2014.
- *SRW fall Chinook.* The adopted management measures have an ocean exploitation rate of 47.8 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 2014.
- *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.

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 2014 Chinook harvest management south of Cape Falcon are:

- *Sacramento River Fall Chinook (SRFC)*. The 2014 Sacramento Index (SI) forecast is 634,700 SRFC adults, which is lower than the 2013 preseason forecast of 834,200.
- *KRFC*. The age-3 forecast is 219,800 KRFC. The age-4 forecast is 67,400 fish, and the age-5 forecast is 12,100. Last year's preseason forecast was 390,700 age-3, 331,200 age-4, and 5,700 age-5 fish.
- *SRWC*. No abundance forecast is made for this stock. The geometric mean of the most recent three years of escapement is 2,380 fish which represents an increase in this metric relative to last year.

### 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.
- KRFC natural area spawning escapement of at least 40,700 adults, a spawner reduction rate not to exceed 68 percent (FMP conservation objective), and 50:50 tribal-non-tribal sharing of adult harvest (Department of Interior Solicitor Opinion).

### 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 2014 fisheries south of Point Arena to a maximum of 15.4 percent and (2) specifies time/area closures and minimum size limit constraints south of Point Arena, is 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 190,395 hatchery and natural area adult spawners is met by the adopted management measures.
- *LCR natural tule fall Chinook*. The 2014 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 2014.

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 2014 forecast for hatchery coho from the Columbia River and the coast south of Cape Falcon of 983,100 is higher than the 2013 forecast of 525,400. The Columbia River early coho forecast is 526,600 compared to the 2013 forecast of 331,600 and the Columbia River late coho forecast is 437,500, compared to the 2013 forecast of 169,500.
- *OCN coho*. The 2014 OCN forecast is 230,600 compared to the 2013 forecast of 191,000.
- *LCN coho*. The 2014 LCN forecast is 33,100 compared to the 2013 forecast of 46,500.
- *Puget Sound coho*. Among Puget Sound natural stocks, Skagit, Snohomish, Stillaguamish and Hood Canal are in the normal category in 2014, and Strait of Juan de Fuca is in the low category.
- *Interior Fraser (Thompson River) coho*. This Canadian stock continues to be depressed, and will constrain 2014 ocean coho fisheries north of Cape Falcon.

### 7.1 Objectives

Key coho management objectives shaping management measures in 2014 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 2014 are: a combined marine/freshwater exploitation rate not to exceed 30.0 percent for OCN coho, a combined exploitation rate in marine-area and mainstem Columbia River fisheries not to exceed 22.5 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. Because of the generally favorable forecasts for coho stocks in 2014, Interior Fraser coho is the key management stock for ocean fisheries north of Cape Falcon. 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.

## 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 22.5 percent exploitation rate for combined marine and mainstem Columbia River fisheries, with a marine exploitation rate of 14.4 percent and a mainstem Columbia River exploitation rate of 8.1 percent.
- *OCN coho.* The adopted management measures satisfy the maximum 30.0 percent exploitation rate for combined marine and freshwater fisheries, with a marine exploitation rate of 16.4 percent and a freshwater exploitation rate of 8.9 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.

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 only in odd numbered years. Therefore, pink salmon are not a management consideration for 2014.

## 9.0 IMPORTANT FEATURES OF THE ADOPTED MANAGEMENT MEASURES

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

### 9.1 *Commercial*

Adopted management measures in the area north of Cape Falcon reflect increased allowable catch from those in 2013 because of significantly higher abundance of Columbia River fall Chinook and OPI hatchery coho. In 2014, the increased abundance of Columbia River Chinook also resulted in substantially higher total allowable catches in Canada and Alaska fisheries managed under Aggregate Abundance Based Management (AABM) provisions of the Pacific Salmon Treaty. These provisions include an incremental increase in harvest rates as the aggregate abundance increases. For 2014, all of the AABM fisheries were in the highest harvest rate tier compared to none in 2013. The higher harvest rates in the AABM fisheries had the effect of lower allowable catch in Council fisheries, relative to the catch that could have occurred if the AABM fisheries were in the same harvest tier as 2013.

Two-thirds of the non-Indian troll Chinook quota is assigned to the May-June fishery, which opens initially seven days per week with no landing and possession limit. The summer all-salmon fishery is open July 1 – 8, 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 12,200 in the spring and 8,750 in the summer were applied to the area between the U.S./Canada border and the Queets River; a coho subquota of no more than 5,040 was also applied to the area between the U.S./Canada border and the Queets River during the all-salmon fishery.

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, a minimum natural area adult escapement of 40,700 KRFC, and the 41 percent exploitation rate limit on ESA-listed LCR tule Chinook. Commercial fisheries south of Point Arena are also constrained by the maximum allowable age-3 impact rate of 15.4 percent on ESA-listed SRWC. The 2014 forecast of the Sacramento Index (SI) is lower than 2013, but high enough that 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 October, with a five day closure at the beginning of August and a four day closure between late August and early September. Weekly landing and possession limits will be in place for September and October fisheries. Non-mark-selective incidental coho retention may be allowed in September if sufficient quota is available for transfer from the recreational, non-mark-selective coho fishery. Weekly landing limits and regulations pertaining to the ratio of coho and Chinook per landing would apply.

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.

Fort Bragg area fisheries will be open for approximately half of June and July, most of August, and the entire month of September.

Fisheries from Point Arena to the U.S./Mexico border will be open from May 1 through the end of June, representing the first time since 2004 that continuous fishing opportunity will occur for these months. Fisheries will reopen on July 15. In the San Francisco management area, the season will run through the end of September with a brief closure at the end of August. In the Monterey management area, the season will end on August 13. The Monday through Friday fall area target zone fishery between Point Reyes and Point San Pedro will occur in October.

## **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 16 in the Neah Bay and La Push subareas and on May 31 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 9,000 marked Chinook.

The all-salmon recreational fisheries in the subareas between the U.S. Canada Border and Cape Falcon open on June 14, and operate under regulations similar to recent years. Chinook guidelines and coho subarea quotas are increased compared with 2013. No Area 4B add-on fishery is scheduled in 2014.

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 August 30 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 10 and run through September 7. The mark-selective coho quota fishery described above will allow for marked coho retention in the Oregon KMZ.

South of the KMZ, all areas opened on April 5. The fishery in the Fort Bragg area will be open through November 9 with a 20 inch minimum size limit. In the San Francisco area, the minimum size limit will be 24 inches through June 30, then 20 inches until the end of the season on November 9. In the Monterey area, the minimum size limit will be 24 inches for the entire season, which ends on October 5.

### 9.3 *Treaty Indian*

The adopted management measures are generally similar in structure as in recent years. Chinook and coho quotas were increased due to an increased abundance of Columbia River hatchery Chinook and higher abundance of OPI hatchery coho and the less restrictive standard for LCN coho specified in the NMFS guidance for 2014. The Treaty Indian troll fishery opens on May 1 with a Chinook only fishery and runs until June 30 with a 31,250 sub-quota. The all-salmon fishery will open July 1 until September 15 with a sub-quota of 31,250 Chinook and 57,500 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

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 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 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 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 located adjacent to neighboring catch areas. This pattern is particularly true for areas between Humbug Mountain and Point Arena. In an attempt to account for this effect, adjustments were made based on historical transfer patterns to assign income impacts to the “correct” landing area. The patterns are typically inferred from the most recent year’s catch and landings data. For example, in 2013 there were substantial deliveries of salmon caught between Cape Falcon and Humbug Mountain to landing ports to the south in the Oregon KMZ, and salmon caught between Horse Mountain and Point Arena were landed to the north at ports in the California KMZ region. There were also transfers of harvest between other catch areas and adjacent landings ports but these were much 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 2013 were at their highest level in inflation-adjusted terms since 2008, reversing a declining annual trend from that time. However if in 2014, actual exvessel prices, average weight per fish harvested, and/or transfers between catch areas and landing ports diverge substantially from the values assumed for these projections, then actual commercial fisheries revenue and associated income impacts may differ from the values predicted 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 areas 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*. For the area north of Cape Falcon, recreational fishery effort was estimated using historical CPUE estimates applied to the adopted salmon quotas. For the summer mark-selective coho fishery, since north of Cape Falcon coho quotas are significantly higher than in the recent past and the highest since 2009, the average 2009 Washington coho CPUE was applied to the coho quota. For the June Chinook fishery, average 2011-2013 Washington Chinook CPUE was applied. If actual angler effort or success rates in 2014 differ substantially from recent year averages, then actual recreational fishing impacts may differ from the values predicted in Table 10 and Figure 4.

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

The Proposed Action, adoption of the 2014 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 (Sacramento River fall Chinook, Snohomish coho, Hood Canal coho, and Strait of Juan de Fuca 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 generally fall within the range of impacts projected for the Alternatives in Preseason Report II, although for the area between Cape Falcon and Humbug Mountain and the area south of Point Arena projected personal income impacts from commercial fisheries are slightly greater

than those under the Alternatives in Preseason Report II, while in the Fort Bragg area projected personal income impacts under the Proposed Action fall slightly below the Alternatives in Preseason Report II.

The No-Action Alternative would result in at least two stocks not meeting conservation objectives, and thus would not meet the purpose and need of the Proposed Action. While there were no estimates of the economic impacts of the No-Action Alternative, a qualitative assessment of the fishery's performance relative to 2013 indicates that the Proposed Action would have slightly ~~beneficial~~~~greater~~ coastwide economic impacts from recreational fishing and slightly ~~adverse~~~~lower~~ coastwide economic impacts from commercial fishing than No-Action. ~~Collectively, the economic value of the 2014 Proposed Action is two percent less than for 2013 fisheries.~~

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, 2014.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<b>North of Cape Falcon</b>
<b>Supplemental Management Information</b>
<p>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).</p> <p>2. Non-Indian commercial troll TAC: 56,900 Chinook and 35,200 marked coho.</p>
<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>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 <a href="mailto:nfalcon.trollreport@state.or.us">nfalcon.trollreport@state.or.us</a>. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts.</p>
<p><b>U.S./Canada Border to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• 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).</li> </ul> <p>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 <a href="mailto:nfalcon.trollreport@state.or.us">nfalcon.trollreport@state.or.us</a>. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts.</p>

TABLE 1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<b>South of Cape Falcon</b>
<b>Supplemental Management Information</b>
<p>1. Klamath River recreational fishery allocation: 4,128 adult Klamath River fall Chinook. 2. Klamath tribal allocation: 27,294 adult Klamath River fall Chinook.</p>
<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>• April 1-July 31, August 6-29;</li> <li>• September 3-October 31 (C.9.a).</li> </ul> <p>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.).</p> <p><b>Non-selective incidental coho retention:</b></p> <ul style="list-style-type: none"> <li>• 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).</li> </ul> <p>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</p>
<p><b>Humbug Mt. to OR/CA Border (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>• April 1-May 31;</li> <li>• June 15 through earlier of June 30, or a 1,500 Chinook quota;</li> <li>• July 1 through earlier of July 31, or a 500 Chinook quota;</li> <li>• August 6 through earlier of August 29, or a 500 Chinook quota;</li> <li>• September 12 through earlier of September 27 or a 500 Chinook quota (C.9.a).</li> </ul> <p>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).</p> <p>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.</p>
<p><b>OR/CA Border to Humboldt South Jetty (California KMZ)</b></p> <ul style="list-style-type: none"> <li>• September 12 through earlier of September 30, or 4,000 Chinook quota (C.9.b).</li> </ul> <p>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).</p>
<p><b>Humboldt South Jetty to Horse Mt.</b> Closed.</p>

TABLE 1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>	
<p><b>Horse Mt. to Pt. Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>• June 19-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p> <p>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.</p>	
<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 1-30;</li> <li>• July 15-31;</li> <li>• August 1-29;</li> <li>• September 1-30 (C.9.b).</li> </ul> <p>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).</p> <p><b>Pt. Reyes to Pt. San Pedro (Fall Area Target Zone)</b></p> <ul style="list-style-type: none"> <li>• October 1-3, 6-10, and 13-15.</li> </ul> <p>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).</p>	
<p><b>Pigeon Pt. to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>• May 1-31;</li> <li>• June 1-30;</li> <li>• July 15-31;</li> <li>• August 1-13 (C.9.b).</li> </ul> <p>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).</p> <p>California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the State. (California Fish and Game Code §8226)</p>	

<b>B. MINIMUM SIZE (Inches)</b>					
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Area (when open)	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
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

### 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 90° angle.

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

- a. Except as provided under C.4.b below, it is unlawful for a vessel to have troll or recreational gear in the water while in any area closed to fishing for a certain species of salmon, while possessing that species of salmon; however, fishing for species other than salmon is not prohibited if the area is open for such species, and no salmon are in possession.
- b. When Genetic Stock Identification (GSI) samples will be collected in an area closed to commercial salmon fishing, the scientific research permit holder shall notify NOAA OLE, USCG, CDFW 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 (48°23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48°10'00" N. lat.) and east of 125°05'00" W. long.
- b. *Mandatory Yelloweye Rockfish Conservation Area* - The area in Washington Marine Catch Area 3 from 48°00.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°16.50' W. long. to 48°00.00' N. lat.; 125°16.50' W. long. and connecting back to 48°00.00' N. lat.; 125°14.00' W. long.
- c. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 55'36" N. lat., 124°10'51" W. long.).
- d. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09" N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat., 124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.
- e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately 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).

TABLE 1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014.  
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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 1. Commercial troll management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014.  
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- 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.

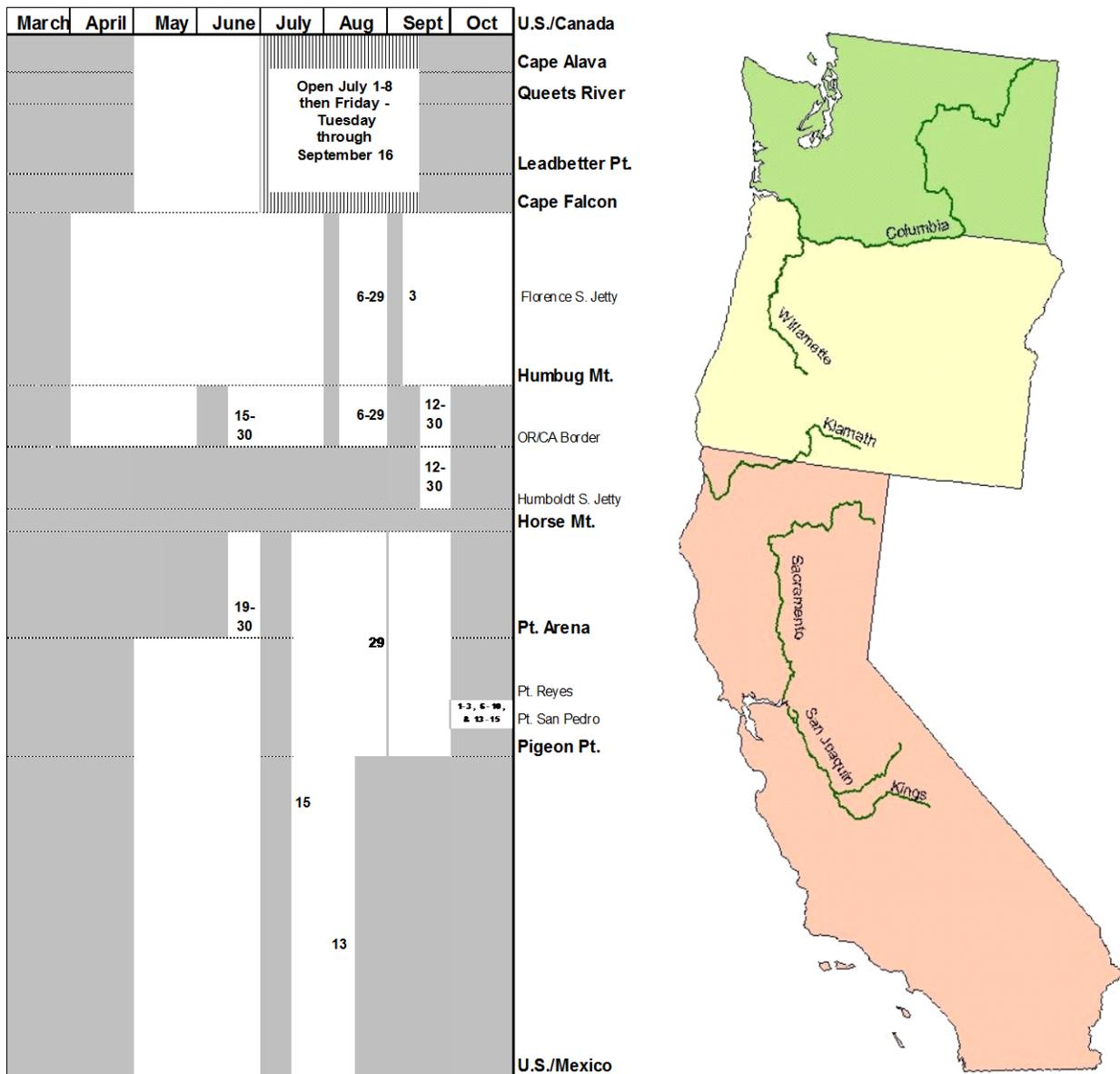


FIGURE 1. Council-adopted non-Indian commercial salmon seasons for 2014. Dates are the first or last days of the month unless otherwise specified.

TABLE 2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<b>North of Cape Falcon</b>
<b>Supplemental Management Information</b>
<p>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.</p>
<p><b>U.S./Canada Border to Queets River</b></p> <ul style="list-style-type: none"> <li>• 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).</li> </ul>
<p><b>Queets River to Leadbetter Pt.</b></p> <ul style="list-style-type: none"> <li>• 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).</li> </ul>
<p><b>Leadbetter Pt. to Cape Falcon</b></p> <ul style="list-style-type: none"> <li>• 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).</li> </ul>
<p><b>U.S./Canada Border to Cape Alava (Neah Bay)</b></p> <ul style="list-style-type: none"> <li>• 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).</li> </ul>
<p><b>Cape Alava to Queets River (La Push Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 14 through earlier of September 21 or 4,750 marked coho subarea quota with a subarea guideline of 2,350 Chinook (C.5).</li> <li>• 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.</li> </ul> <p>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).</p>
<p><b>Queets River to Leadbetter Pt. (Westport Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 14 through earlier of September 30 or 68,380 marked coho subarea quota with a subarea guideline of 27,600 Chinook (C.5).</li> </ul> <p>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).</p>
<p><b>Leadbetter Pt. to Cape Falcon (Columbia River Subarea)</b></p> <ul style="list-style-type: none"> <li>• June 14 through earlier of September 30 or 92,400 marked coho subarea quota with a subarea guideline of 13,100 Chinook (C.5).</li> </ul> <p>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).</p>

TABLE 2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<b>South of Cape Falcon</b>
<b>Supplemental Management Information</b>
<p>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.</p>
<p><b>Cape Falcon to Humbug Mt.</b></p> <ul style="list-style-type: none"> <li>March 15 through October 31 (C.6), except as provided below during the all salmon mark-selective and non-mark-selective coho fisheries.</li> </ul> <p>Seven days per week. All salmon except coho; two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <ul style="list-style-type: none"> <li>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).</li> </ul> <p><b>All salmon</b>, 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).</p> <p>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).</p> <p>Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 or 206-526-6667 for specific dates) (C.3.b, C.4.d).</p>
<p><b>Cape Falcon to OR/CA Border</b></p> <ul style="list-style-type: none"> <li>All salmon mark-selective coho fishery: June 21 through earlier of August 10 or a landed catch of 80,000 marked coho.</li> </ul> <p>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).</p> <p>Fishing in the Stonewall Bank yelloweye rockfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (call the halibut fishing hotline 1-800-662-9825 or 206-526-6667 for specific dates) (C.3.b, C.4.d).</p>
<p><b>Humbug Mt. to OR/CA Border. (Oregon KMZ)</b></p> <ul style="list-style-type: none"> <li>May 10 through September 7 except as provided above during the all salmon mark-selective coho fishery (C.6).</li> </ul> <p>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).</p>
<p><b>OR/CA Border to Horse Mt. (California KMZ)</b></p> <ul style="list-style-type: none"> <li>May 10 through September 7 (C.6).</li> </ul> <p>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.</p>
<p><b>Horse Mt. to Pt. Arena (Fort Bragg)</b></p> <ul style="list-style-type: none"> <li>April 5 through November 9.</li> </ul> <p>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).</p> <p>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).</p>

TABLE 2. Recreational management measures adopted by the Council for non-Indian ocean salmon fisheries, 2014.  
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<b>A. SEASON ALTERNATIVE DESCRIPTIONS</b>
<p><b>Pt. Arena to Pigeon Pt. (San Francisco)</b></p> <ul style="list-style-type: none"> <li>April 5 through November 9.</li> </ul> <p>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).</p> <p>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).</p>
<p><b>Pigeon Pt. to U.S./Mexico Border (Monterey)</b></p> <ul style="list-style-type: none"> <li>April 5 through October 5.</li> </ul> <p>Seven days per week. All salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).</p> <p>In 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).</p> <p>California State regulations require all salmon be made available to a CDFW representative for sampling immediately at port of landing. Any person in possession of a salmon with a missing adipose fin, upon request by an authorized agent or employee of the CDFW, shall immediately relinquish the head of the salmon to the state. (California Fish and Game Code §8226)</p>

<b>B. MINIMUM SIZE (Inches) (See C.1)</b>
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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
	After June 30	20.0	-
Pigeon Pt. to U.S./Mexico Border	24.0	-	24.0

<b>C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS</b>
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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, 2014.  
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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 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.

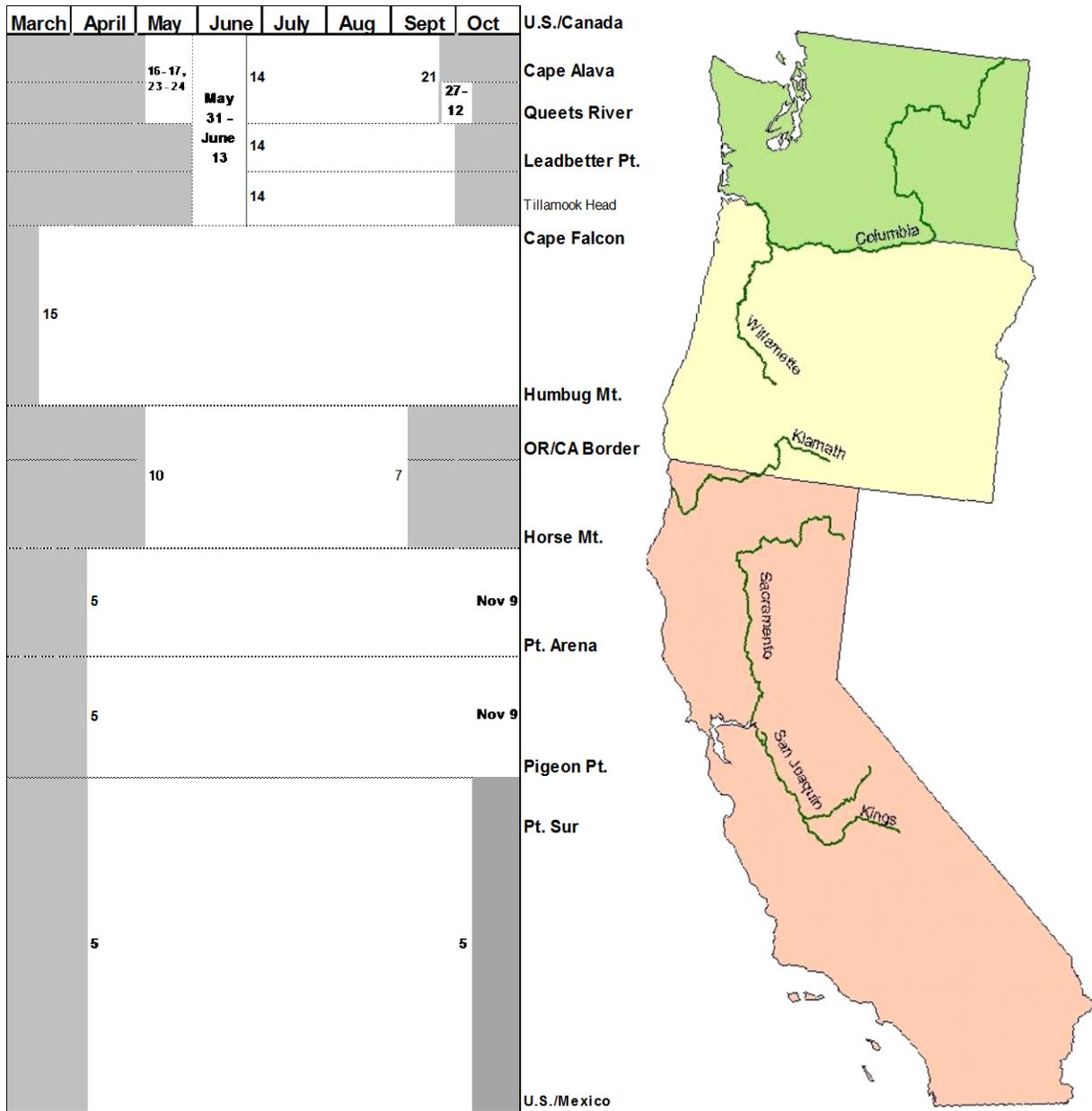


FIGURE 2. Council-adopted recreational salmon seasons for 2014. Dates are the first or last days of the month unless otherwise specified.

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

<b>A. SEASON DESCRIPTIONS</b>
<b>Supplemental Management Information</b>
1. Overall Treaty-Indian TAC: 62,500 Chinook and 57,500 coho.
<ul style="list-style-type: none"> <li>• 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).</li> <li>• 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).</li> </ul>

<b>B. MINIMUM SIZE (Inches)</b>					
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. (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 4. Chinook and coho harvest quotas and guidelines (\*) for 2014 ocean salmon fishery management measures adopted by the Council.

Fishery or Quota Designation	Chinook	Coho
<b>NORTH OF CAPE FALCON</b>		
<b>TREATY INDIAN OCEAN TROLL<sup>a/</sup></b>		
U.S./Canada Border to Cape Falcon (All Except Coho)	31,250	-
U.S./Canada Border to Cape Falcon (All Species)	31,250	57,500
Subtotal Treaty Indian Ocean Troll	62,500	57,500
<b>NON-INDIAN COMMERCIAL TROLL<sup>b/</sup></b>		
U.S./Canada Border to Cape Falcon (All Except Coho)	37,900	-
U.S./Canada Border to Cape Falcon (All Species)	19,000	35,200
Subtotal Non-Indian Commercial Troll	56,900	35,200
<b>RECREATIONAL</b>		
U.S./Canada Border to Cape Falcon (All Except Coho) <sup>c/</sup>	9,000 *	-
U.S./Canada Border to Cape Alava <sup>b/</sup>	7,000 *	19,220
Cape Alava to Queets River <sup>b/</sup>	2,400 *	4,800
Queets River to Leadbetter Pt. <sup>b/</sup>	27,600 *	68,380
Leadbetter Pt. to Cape Falcon <sup>b/d/</sup>	13,100 *	92,400
Subtotal Recreational	59,100	184,800
<b>TOTAL NORTH OF CAPE FALCON</b>	<b>178,500</b>	<b>277,500</b>
<b>SOUTH OF CAPE FALCON</b>		
<b>COMMERCIAL TROLL<sup>a/</sup></b>		
Humbug Mt. to OR/CA Border	3,000	-
OR/CA Border to Humboldt South Jetty	4,000	-
Subtotal Troll	7,000	-
<b>RECREATIONAL</b>		
Cape Falcon to Oregon/California Border	-	100,000 <sup>e/</sup>
<b>TOTAL SOUTH OF CAPE FALCON</b>	<b>7,000</b>	<b>100,000</b>

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 4,500.

d/ Does not include Buoy 10 fishery. Expected catch in August and September of 37,400 Chinook and 50,000 marked coho.

e/ The quota consists of both mark-selective and non-mark-selective quotas of 80,000 and 20,000, respectively.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2014 ocean fishery management measures adopted by the Council.<sup>a/</sup> (Page 1 of 4)

Key Stock/Criteria	Projected Ocean Escapement <sup>b/</sup> or Other Criteria (Council Area Fisheries)	Spawner Objective or Other Comparative Standard as Noted
<b>CHINOOK</b>		
<u>PUGET SOUND:</u>		
Elwha Summer/Fall	2.4%	≤ 10.0% Southern U.S. Rebuilding Exploitation Rate (NMFS ESA consultation standard)
Dungeness Spring	2.8%	≤ 6.0% Southern U.S. CERC (NMFS ESA consultation standard)
Mid-Hood Canal Summer/Fall	10.6%	≤ 15.0% Preterminal Southern U.S. (NMFS ESA consultation standard)
Skokomish Summer/Fall	49.8% (4.4%)	≤ 50.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
Nooksack Spring	6.3%	≤ 7.0% Southern U.S. CERC, not to exceed in four out of five years (NMFS ESA consultation standard)
	27.4%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason
Skagit Summer/Fall	42.6%	≤ 50.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	71.8%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason
Skagit Spring	32.8%	≤ 38.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	35.7%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason
Stillaguamish Summer/Fall	18.3%	≤ 25.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	13.1%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason
Snohomish Summer/Fall	20.3%	≤ 21.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	19.2%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason
Lake Washington Summer/Fall	20.0% (4.6%)	≤ 20.0% Southern U.S. Rebuilding Exploitation Rate (NMFS ESA consultation standard)
	46.6%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason
Green River Summer/Fall	9.6%	≤ 12.0% Preterminal Southern U.S. CERC (NMFS ESA consultation standard)
	2.7	≥ 5.800 Natural spawning escapement (NMFS ESA consultation standard)
	25.1%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason
White River Spring	19.3%	≤ 20.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
Puyallup Summer/Fall	49.5% (4.6%)	≤ 50.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
Nisqually River Summer/Fall	52.0% (6.2%)	≤ 52.0% Total Rebuilding Exploitation Rate (NMFS ESA consultation standard)
<u>WASHINGTON COAST:</u>		
Hoko Fall	2.4	0.85 FMP MSY spawning escapement objective
	40.0%	≤ 60.0% ISBM Index (PSC General Obligation) compliance assessed postseason
Quillayute Fall	<i>c/</i>	3.0 FMP MSY spawning escapement objective
	115.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
Hoh Fall	<i>c/</i>	1.2 FMP MSY spawning escapement objective
	125.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
Queets Fall	<i>c/</i>	2.5 FMP MSY spawning escapement objective
	23.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
Grays Harbor Fall	<i>c/</i>	11.4 FMP MSY spawning escapement objective
	47.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2014 ocean fishery management measures adopted by the Council.<sup>a/</sup> (Page 2 of 4)

Key Stock/Criteria	Projected Ocean Escapement <sup>b/</sup> or Other Criteria (Council Area Fisheries)	Spawner Objective or Other Comparative Standard as Noted
<b>CHINOOK</b>		
<u>COLUMBIA RIVER</u>		
Columbia Upriver Brights	919.4	74.0 Minimum ocean escapement to attain 60.0 adults over McNary Dam, with normal distribution and no mainstem harvest.
	91.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
Deschutes Upriver Brights	70.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
Mid-Columbia Brights	340.2	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 <sup>e/</sup>	100.7	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)	41.0%	≤ 41.0% Total adult equivalent fishery exploitation rate (2014 NMFS ESA guidance)
Columbia Lower River Wild <sup>d/</sup> (threatened)	33.4	6.9 Minimum ocean escapement to attain MSY spawner goal of 5.7 for N. Lewis River fall Chinook (NMFS ESA consultation standard)
	53.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
Spring Creek Hatchery Tules	103.3	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	47.8%	≤ 70.0% Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard)
Columbia Upriver Summers	64.7	29.0 Minimum ocean escapement to attain 12.1 adults over Rock Island Dam.
	146.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
<u>OREGON COAST:</u>		
Nehalem Fall	144.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
Siletz Fall	72.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met
Siuslaw Fall	139.0%	≤ 60.0% ISBM Index (PSC general obligation) not applicable for 2014 because PSC escapement goal met

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2014 ocean fishery management measures adopted by the Council.<sup>a/</sup> (Page 3 of 4)

Key Stock/Criteria	Projected Ocean Escapement <sup>b/</sup> or Other Criteria (Council Area Fisheries)	Spawner Objective or Other Comparative Standard as Noted
<b>CHINOOK</b>		
<b>CALIFORNIA</b>		
Klamath River Fall	40,700	40,700 MSY natural area adult spawners
Federally recognized tribal harvest	50.0%	50.0% Equals 27.3 (thousand) adult fish for Yurok and Hoopa Valley tribal fisheries
Spawner Reduction Rate	47.1%	≤ 47.1% FMP; equals 36.3 (thousand) fewer natural area adult spawners due to fishing
Adult river mouth return	92.8	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	9.0%	No Council guidance for 2014
River recreational fishery share	15.1%	NA Equals 4.1 (thousand) adult fish for recreational inriver fisheries
Sacramento River Winter (endangered)	15.4%	≤ 15.4% 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 2014 ESA Guidance)
Sacramento River Fall	314.7	≥ 190.4 2014 preseason ACL
Sacramento Index Exploitation Rate	50.4%	≤ 70.0% FMP
Ocean commercial impacts	191.2	All Alternatives include fall (Sept-Dec) 2013 impacts (35.3 thousand SRFC)
Ocean recreational impacts	77.5	All Alternatives include fall 2013 impacts (3.8 thousand SRFC)
River recreational impacts	51.2	No guidance in 2014
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 2014 ocean fishery management measures adopted by the Council.<sup>a/</sup> (Page 4 of 4)

Key Stock/Criteria	Projected Ocean Escapement <sup>b/</sup> or Other Criteria		Spawner Objective or Other Comparative Standard as Noted
	(Council Area Fisheries)		
			<b>COHO</b>
Interior Fraser (Thompson River)	10.0% (5.2%)	≤ 10.0%	2014 Southern U.S. exploitation rate ceiling; PSC coho agreement
Skagit	38.1% (4.9%)	≤ 60.0%	2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Stillaguamish	32.0% (3.3%)	≤ 50.0%	2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Snohomish	30.0% (3.3%)	≤ 60.0%	2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Hood Canal	55.7% (5.3%)	≤ 65.0%	2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Strait of Juan de Fuca	12.0% (4.4%)	≤ 40.0%	2014 total exploitation rate ceiling; FMP matrix <sup>d/</sup>
Quillayute Fall	17.1	6.3	FMP MSY adult spawner estimate <sup>d/</sup> Value depicted is ocean escapement
Hoh	7.5	2.5	FMP MSY adult spawner estimate <sup>d/</sup> Value depicted is ocean escapement
Queets Wild	8.4	5.8	FMP MSY adult spawner estimate <sup>d/</sup> Value depicted is ocean escapement
Grays Harbor	96.5	24.4	FMP MSY adult spawner estimate <sup>d/</sup> Value depicted is ocean escapement
Lower Columbia River Natural (threatened)	22.5(14.4%)	≤ 22.5%	Total marine and mainstem Columbia River fishery exploitation rate (2014 NMFS ESA guidance)
Upper Columbia <sup>e/</sup>	73%	≥ 50%	Minimum percentage of the run to Bonneville Dam
Columbia River Hatchery Early	321.3	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	260.4	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 <sup>f/</sup>	25.3% <sup>f/</sup>	≤ 30.0%	Marine and freshwater fishery exploitation rate (NMFS ESA consultation standard)
Southern Oregon/Northern California Coast (threatened)	6.9%	≤ 13.0%	Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard)

a/ Reflects 2014 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/ 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.

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

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

f/ Modeled as if 35,000 of the marked coho quota was rolled into the 20,000 non-mark-selective coho quota. The resulting 40,300 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 2.5 percent for a total exploitation rate of 25.3 percent.

TABLE 6. Preliminary projections of Chinook and coho harvest impacts for 2014 ocean salmon fishery management measures adopted by the Council.

Area and Fishery	Catch Projection	Bycatch Mortality <sup>a/</sup> Projection	Bycatch Projection <sup>b/</sup>	Observed in 2013	
				Catch	Bycatch Mortality
<b>OCEAN FISHERIES<sup>c/</sup>:</b>					
<b>CHINOOK (thousands of fish)</b>					
<b>NORTH OF CAPE FALCON</b>					
Treaty Indian Ocean Troll	62.5	14.7	48.6	50.0	7.2
Non-Indian Commercial Troll	56.9	26.4	95.3	41.9	11.5
Recreational	59.1	14.8	87.4	30.8	4.6
<b>CAPE FALCON TO HUMBUG MT.</b>					
Commercial Troll	140.6	18.1	44.7	104.0	19.1
Recreational	10.7	1.0	3.3	18.0	2.1
<b>HUMBUG MT. TO HORSE MT.</b>					
Commercial Troll	7.9	1.0	2.5	16.9	2.2 <sup>d/</sup>
Recreational	21.3	2.0	6.5	44.3	4.3 <sup>d/</sup>
<b>SOUTH OF HORSE MT.</b>					
Commercial	171.0	22.1	54.4	287.3	37.1 <sup>d/</sup>
Recreational	80.7	7.8	22.3	79.4	7.6 <sup>d/</sup>
<b>TOTAL OCEAN FISHERIES</b>					
Commercial Troll	438.9	82.3	245.5	500.1	77.1
Recreational	171.8	25.6	119.5	172.6	18.7
<b>INSIDE FISHERIES:</b>					
Area 4B	-	-	-	-	-
Buoy 10	37.4	0.6	3.3	22.6	2.8 <sup>d/</sup>
<b>COHO (thousands of fish)</b>					
<b>NORTH OF CAPE FALCON</b>					
Treaty Indian Ocean Troll <sup>e/</sup>	57.5	4.3	8.2	47.7	3.5
Non-Indian Commercial Troll <sup>e/</sup>	35.2	15.0	49.3	6.5	7.2
Recreational <sup>e/</sup>	184.8	32.0	136.5	50.2	13.5
<b>SOUTH OF CAPE FALCON</b>					
Commercial Troll	-	13.1	50.6	0.0	8.7
Recreational <sup>e/</sup>	100.0	27.0	124.7	10.3	5.9
<b>TOTAL OCEAN FISHERIES</b>					
Commercial Troll	92.7	32.4	108.1	54.2	19.4
Recreational	284.8	59.0	261.2	60.5	19.4
<b>INSIDE FISHERIES:</b>					
Area 4B	-	-	-	-	-
Buoy 10	50.0	8.0	29.5	7.6	1.3 <sup>d/</sup>

a/ The bycatch mortality reported in this table consists of drop-off mortality (includes predation on hooked fish) plus hook-and-release mortality of Chinook and coho salmon in Council-area fisheries. Drop-off mortality for both Chinook and coho is assumed to be equal to 5% of total encounters south of Cape Falcon and 5% of legal encounters north of Cape Falcon. 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: 17% (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 2014 ocean fisheries management measures adopted by the Council.

Fishery	Exploitation Rate (Percent)			
	LCN Coho	OCN Coho	RK Coho	LCR Tule
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	1.7%
BRITISH COLUMBIA	0.1%	0.3%	0.0%	13.1%
PUGET SOUND/STRAIT	0.1%	0.1%	0.0%	0.4%
NORTH OF CAPE FALCON				
Treaty Indian Ocean Troll	2.3%	0.5%	0.0%	5.6%
Recreational	5.5%	1.0%	0.0%	3.3%
Non-Indian Troll	1.9%	0.5%	0.0%	7.3%
SOUTH OF CAPE FALCON				
Recreational:				0.1%
Cape Falcon to Humbug Mt.	3.3%	10.9%	0.7%	
Humbug Mt. to OR/CA border (KMZ)	0.1%	0.4%	1.0%	
OR/CA border to Horse Mt. (KMZ)	0.1%	0.4%	1.9%	
Fort Bragg	0.0%	0.3%	1.1%	
South of Pt. Arena	0.0%	0.3%	0.7%	
Troll:				1.6%
Cape Falcon to Humbug Mt.	0.7%	0.9%	0.1%	
Humbug Mt. to OR/CA border (KMZ)	0.0%	0.0%	0.0%	
OR/CA border to Humboldt South Jetty (KMZ)	0.0%	0.0%	0.2%	
Fort Bragg	0.0%	0.4%	0.9%	
South of Pt. Arena	0.0%	0.3%	0.2%	
BUOY 10	1.7%	0.1%	0.0%	8.0%
ESTUARY/FRESHWATER	NA	8.9% <sup>a/</sup>	0.2%	
<b>TOTAL</b>	<b>14.4%</b>	<b>25.3%<sup>b/</sup></b>	<b>7.1%</b>	<b>41.0%</b>

a/ Includes adult mortalities associated with PSC funded Chinook escapement monitoring studies in Oregon.

b/ Modeled as if 35,000 of the marked coho quota was rolled into the 20,000 non-mark-selective coho quota. The resulting 40,300 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 2.5 percent for a total exploitation rate of 25.3 percent.

TABLE 8. Projected coho mark rates for 2014 mark-selective fisheries under Council adopted management measures (percent marked).

Area	Fishery	June	July	August	Sept
Puget Sound					
Strait of Juan de Fuca (Area 5)	Recreational	--	50%	48%	47%
Strait of Juan de Fuca (Area 6)	Recreational	--	47%	49%	43%
San Juan Island (Area 7)	Recreational	--	--	47%	32%
North Puget Sound (Areas 6 & 7A)	Net	--	--	47%	38%
Council Area					
Neah Bay (Area 4/4B)	Recreational	40%	56%	51%	55%
LaPush (Area 3)	Recreational	66%	61%	65%	42%
Westport (Area 2)	Recreational	72%	69%	65%	57%
Columbia River (Area 1)	Recreational	78%	76%	71%	68%
Tillamook	Recreational	70%	64%	56%	--
Newport	Recreational	66%	60%	54%	--
Coos Bay	Recreational	57%	51%	36%	--
Brookings	Recreational	51%	35%	29%	--
Neah Bay (Area 4/4B)	Troll	--	52%	52%	50%
LaPush (Area 3)	Troll	--	59%	53%	52%
Westport (Area 2)	Troll	--	61%	63%	54%
Columbia River (Area 1)	Troll	--	71%	66%	62%
Tillamook	Troll	--	--	--	--
Newport	Troll	--	--	--	--
Coos Bay	Troll	--	--	--	--
Brookings	Troll	--	--	--	--
Columbia River					
Buoy 10	Recreational	--	--	68%	68%

TABLE 9. Preliminary projected exvessel value by catch area under Council-adopted 2014 non-Indian commercial troll management measures compared with 2013 and two five year averages (2003-2007 and 2009-2013) (inflation adjusted). (Page 1 of 1)

Management Area	Exvessel Value (thousands of dollars) <sup>a/</sup>				Percent Change		
	2014 Projected <sup>b/</sup>	2013	2003-2007 Average <sup>c/</sup>	2009-2013 Average <sup>c/,d/</sup>	From 2013	From 2003-2007	From 2009-2013
					Modeled	Average	Average
North of Cape Falcon	3,824	2,967	1,817	2,695	+29%	+110%	+42%
Cape Falcon to Humbug Mt.	9,414	7,028	6,733	2,976	+34%	+40%	+216%
Humbug Mt. to Horse Mt.	470	1,107	691	412	-58%	-32%	+14%
Horse Mt. to Pt. Arena	2,883	8,657	3,184	2,932	-67%	-9%	-2%
South of Pt. Arena	8,273	14,298	9,371	5,616	-42%	-12%	+47%
Total South of Cape Falcon	21,040	31,089	19,979	11,936	-32%	+5%	+76%
West Coast Total	24,864	34,057	21,797	14,631	-27%	+14%	+70%

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, 2013 exvessel prices, and 2013 average weight

c/ All dollar amounts are inflation adjusted to 2013 values.

d/ The 2009-2013 average includes one year (2009) in which there were no commercial fisheries in California and minimal commercial fisheries in Oregon south of Cape Falcon.

TABLE 10. Preliminary projected angler trips and state level personal income impacts generated under Council-adopted 2014 recreational ocean salmon fishery management measures compared to estimated 2013 and two five year averages (2003-2007 and 2009-2013) (inflation adjusted). (Page 1 of 1)

Management Area	Coastal Community Income Impacts											
	Angler Trips (thousands)				(thousands of dollars) <sup>a/</sup>				Percent Change in Income Impacts			
	2014 Projected	2013	2009-2013 Avg. <sup>b/</sup>	2003-2007 Avg.	2014 Projected	2013	2009-2013 Avg. <sup>b/</sup>	2003-2007 Avg.	Compared to 2013	Compared to 2009-2013 Avg. <sup>b/</sup>	Compared to 2003-2007 Avg.	
North of Cape Falcon	148.5	83.2	88.8	105.6	14,849	8,316	8,734	10,955	+79%	+70%	+36%	
Cape Falcon to Humbug Mt.	66.2	60.1	48.5	75.5	3,839	3,483	2,970	5,041	+10%	+29%	-24%	
Humbug Mt. to Horse Mt.	42.2	49.9	28.6	32.6	2,424	2,868	1,597	1,731	-15%	+52%	+40%	
Horse Mt. to Pt. Arena	20.9	17.2	10.6	23.3	1,668	1,369	826	1,924	+22%	+102%	-13%	
South of Pt. Arena	108.9	96.8	59.8	109.1	9,936	8,832	5,303	10,350	+12%	+87%	-4%	
Total South of Cape Falcon	238.2	223.9	147.4	240.6	17,866	16,552	10,696	19,045	+8%	+67%	-6%	
West Coast Total	386.7	307.1	236.2	346.2	32,716	24,867	19,431	30,000	+32%	+68%	+9%	

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 2013 values.

b/ The 2009-2013 average includes one year in which there were virtually no recreational fisheries south of Horse Mt. (2009), and two years of historically low effort in the KMZ (Humbug Mt. to Horse Mt., 2009-2010).

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.<sup>a/</sup>

Environmental Component	No-Action	Alternative			Proposed Action	2014 Criteria or Comparison
	Alternative <sup>b/</sup>	I	II	III		
<b>Target Stocks</b>						
SRFC						
Spawning Escapement	328,567	324,748	315,423	322,620	314,715	190,395 Natural and hatchery adult spawners; 2014 preseason ACL.
Exploitation Rate	48.0%	48.8%	50.3%	49.2%	50.4%	≤ 70.0% FMP
KRFC						
Spawning Escapement	<b>19,218</b>	40,700	40,700	40,700	40,700	≥40,000 MSY natural area spawners.
Exploitation Rate	<b>75.0%</b>	47.1%	47.1%	47.1%	47.1%	≤ 47.1% FMP
Strait of Juan de Fuca Coho	12.1%	14.6%	13.1%	13.8%	12.0%	≤ 40.0% 2014 total exploitation rate ceiling; FMP matrix <sup>c/</sup>
Skagit Coho	35.8%	39.1%	38.0%	38.4%	38.1%	≤ 60.0% 2014 total exploitation rate ceiling; FMP matrix <sup>c/</sup>
Stillaguamish Coho	28.6%	32.8%	32.1%	32.3%	32.0%	≤ 50.0% 2014 total exploitation rate ceiling; FMP matrix <sup>c/</sup>
Snohomish Coho	26.0%	31.2%	30.6%	30.7%	30.0%	≤ 60.0% 2014 total exploitation rate ceiling; FMP matrix <sup>c/</sup>
Hood Canal Coho	46.0%	56.0%	54.6%	55.4%	55.7%	≤ 65.0% 2014 total exploitation rate ceiling; FMP matrix <sup>c/</sup>
<b>Canadian Stocks</b>						
Interior Fraser Coho	9.4%	<b>12.2%</b>	<b>11.7%</b>	<b>11.1%</b>	10.0%	≤ 10.0% Southern U.S. exploitation rate limit under the PST
<b>ESA-Listed Salmon</b>						
SRWC	13.2%	15.4%	15.4%	15.4%	15.4%	≤ 15.4% SRWC age-3 ocean impact rate in fisheries south of Pt. Arena.
California Coastal Chinook	<b>19.4%</b>	16.0%	16.0%	16.0%	16.0%	≤ 16.0% KRFC age-4 ocean harvest rate.
LCR Natural Tule Chinook	NA	<b>41.6%</b>	<b>41.1%</b>	39.4%	41.0%	≤ 41.0% Total adult equivalent fishery exploitation rate.
LCN Coho	10.7% <sup>b/</sup>	14.9%	13.4%	11.9%	14.4%	≤ 22.5% Total marine and mainstem Columbia fishery exploitation rate.
OCN coho	16.5%	25.3%	21.5%	20.4%	25.3%	≤ 30.0% Marine and freshwater fishery exploitation rate.
SONCC (RK) coho	6.5%	6.9%	6.5%	6.1%	6.9%	≤ 13.0% Marine fishery exploitation rate.
<b>Socioeconomics</b>						
Commercial Community Personal Income Impacts (thousands of dollars)						
North of Cape Falcon	<PA	7,261	7,074	6,068	7,208	
Cape Falcon to Humbug Mt.	<PA	7,481	9,613	9,613	9,739	Slightly greater than Preseason Report II Alternatives range
KMZ	<PA	4,757	5,134	4,727	4,968	
Fort Bragg	>PA	5,539	5,579	5,595	5,474	Slightly less than Preseason Report II Alternatives range
South of Pt. Arena	>PA	15,109	16,972	15,863	16,977	Slightly greater than Preseason Report II Alternatives range
West Coast Total	>PA	40,147	44,372	41,866	44,367	
Recreational Community Personal Income Impacts (thousands of dollars)						
North of Cape Falcon	<PA	15,628	14,070	11,456	14,849	
Cape Falcon to Humbug Mt.	<PA	3,839	3,309	3,109	3,839	
KMZ	>PA	2,531	2,341	2,079	2,424	
Fort Bragg	<PA	1,668	1,665	1,665	1,668	
South of Pt. Arena	<PA	9,936	9,936	9,936	9,936	
West Coast Total	<PA	33,602	31,321	28,245	32,716	

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. For example, the March impact rate of 42.0% on LCR natural tules for Alternative I was revised to 41.6% at the April Council meeting.

b/ Did not include freshwater impacts, which were unavailable in March.

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.

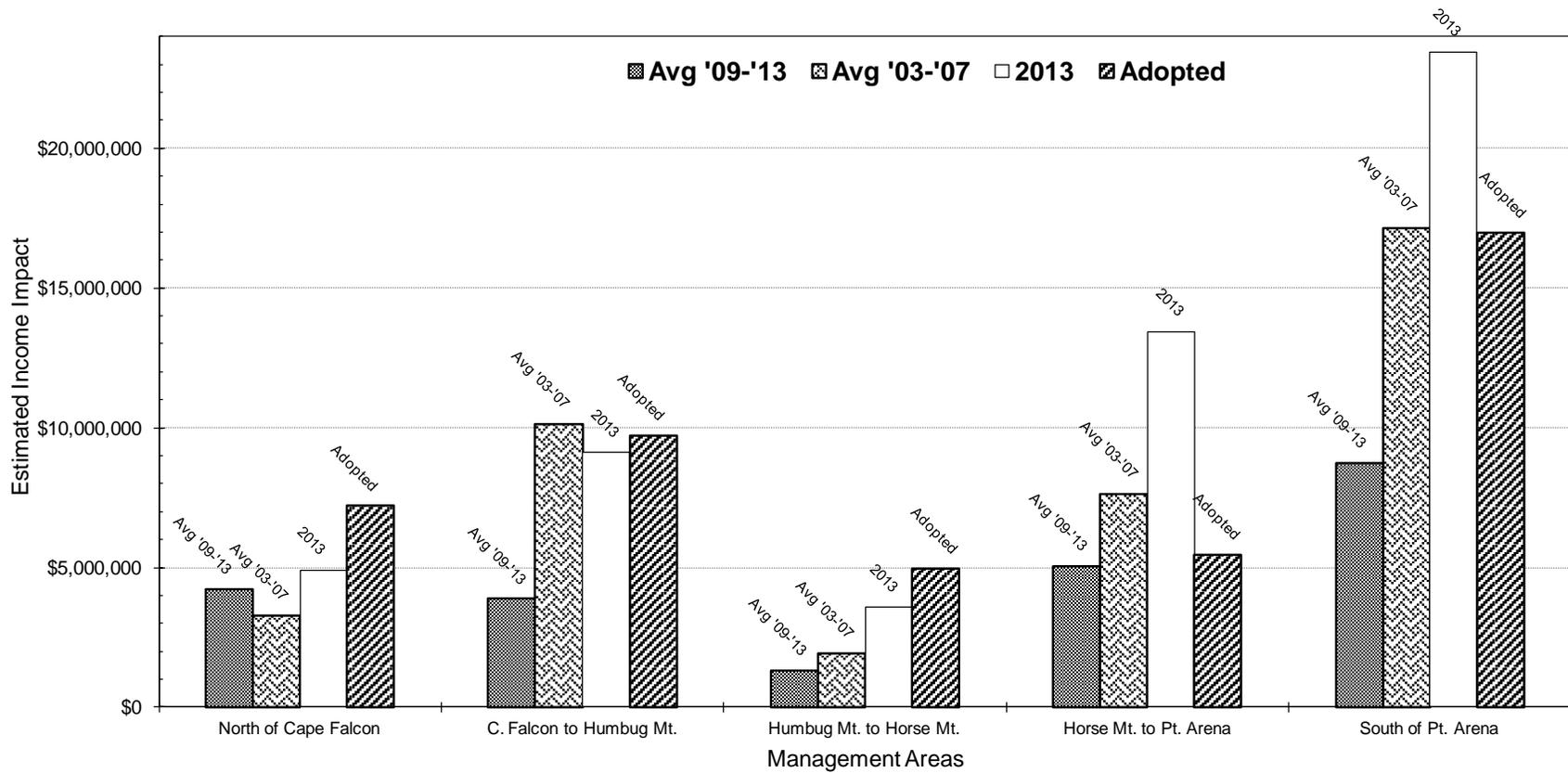


FIGURE 3. Projected coastal community personal income impacts associated with the 2014 commercial troll fishery under Council-adopted management measures compared to estimated 2013 and the 2003-2007 and 2009-2013 averages in inflation-adjusted dollars.

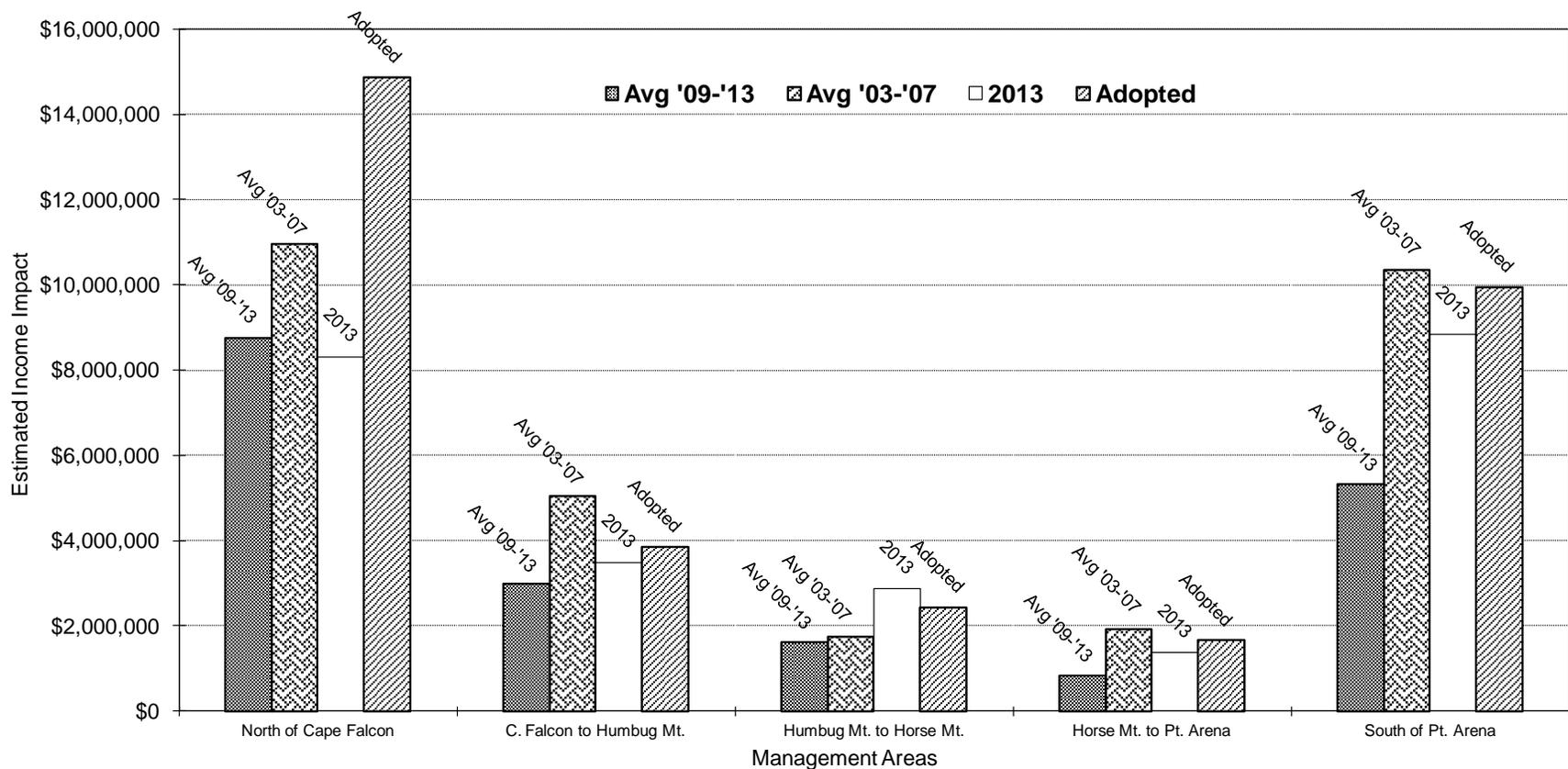
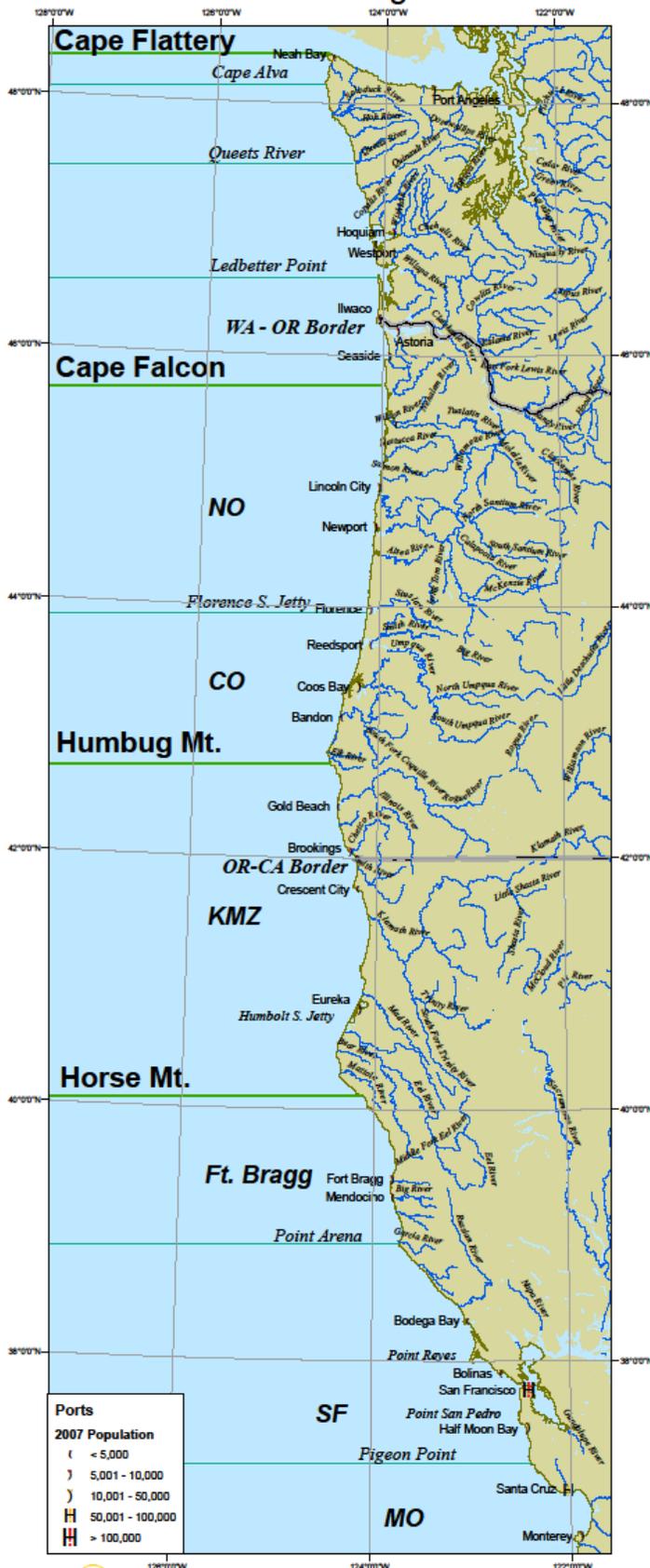


FIGURE 4. Projected coastal community personal income impacts associated with the 2014 recreational fishery under Council-adopted management measures compared to estimated 2013 and the 2003-2007 and 2009-2013 averages in inflation-adjusted dollars.

# Marine Fisheries Management Zones



**Ports**

2007 Population

- ( < 5,000
- ) 5,001 - 10,000
- ) 10,001 - 50,000
- H 50,001 - 100,000
- H > 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*

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 FMU 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*

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

The 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 8, 2011 and will expire on July 31, 2014 (OMB Control No. 0648-0433); the renewal for authorization of this information collection was submitted in February 2014 and is pending OMB approval.

### *Marine Mammal Protection Act*

The MMPA of 1972 is the principle Federal legislation that guides marine mammal species protection and conservation policy in the United States. Under the MMPA, NMFS is responsible for the

management and conservation of 153 stocks of whales, dolphins, porpoise, as well as seals, sea lions, and fur seals; while the US Fish and Wildlife Service is responsible for walrus, sea otters, and the West Indian manatee.

Off the west coast, 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 14418, March 14, 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.

## ***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.**

<b>Date (decision type)</b>	<b>Duration</b>	<b>Species Considered</b>
<b><i>Salmonid Species</i></b>		
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 29, 2008 (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
<b><i>Non-Salmonid Species</i></b>		
April 30, 2007 (BO)	until reinitiated	North American Green Sturgeon
December 22, 2008 (BO)	until December 2018	Eastern and Western DPS Steller Sea Lion
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***

Section 307(c)(1) of the Federal Coastal Zone Management Act (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***

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, effects of the proposed action and other alternatives have been developed in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

### ***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 disproportionately 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 pre season 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 2014 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., on average, less than 5 percent of commercial and recreational harvest occurred prior to May 1 during the years 2001 through 2013). 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 ACLs for KRFC and SRFC, exceeding the ESA

consultation standard for California Coastal Chinook, and forgoing harvest opportunities for Chinook and coho salmon north 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  
2014 OCEAN SALMON FISHERIES MANAGEMENT MEASURES  
(XRIN 0648-XD072)**

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 2014 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 unanticipated changes in northern fisheries that affect available quotas in Pacific Fishery Management Council (Council) area fisheries.

In addition to the criteria for determining significance described above, the Council on Environmental Quality regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of “context” and “intensity.” Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ’s context and intensity criteria. These include:

- 1) Can the proposed action 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 significantly impact the sustainability of target species, due to preseason planning analyses by the Pacific Fishery Management Council’s Salmon Technical Team (STT) and Scientific and Statistical Committee (SSC) to structure fisheries that are consistent with the MSA, conservation objectives, annual catch limits, accountability measures, control rules, and status determination criteria in the Salmon FMP. The Salmon FMP conservation objectives are based on the best available science and are intended to prevent overfishing while achieving optimum yield from West Coast salmon fisheries as required by the MSA.

**2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?**

Response: This proposed action will not result in significant impacts to the sustainability of non-target species. For ESA-listed salmon species, the fisheries are structured such that impacts on listed species are consistent with the applicable ESA consultation standards articulated in the biological opinions analyzing the impacts on those species, as discussed in response to Question 5 below. For non-salmon species, regulations are in place under the 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.

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

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

Response: 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 2014 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 2014 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 14418), indicating there is “a remote likelihood of or no known incidental mortality or serious injury of marine mammals” (MMPA 118(c) I).

**6) Can the proposed action be expected to have a substantial impact on biodiversity and/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 the NMFS ESA Section 7 consultation on the fishery, as noted above. Overall, Pacific Coast salmon fisheries have a minimal impact on marine mammals, as described 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 2014 suggest an economic value similar to 2013, which is a substantial increase in the economic value of salmon fisheries as compared to recent averages. Projected economic value for 2014 commercial salmon fisheries is \$24.9 million (compared with the 2009-2013 average of \$14.6 million). Projected economic value for 2014 recreational salmon fisheries is \$32.7 million (compared with the 2009-2013 average of \$19.4 million).

There are no significant natural or physical environmental effects expected to result from the proposed action. Therefore, there are no significant social or economic impacts interrelated with significant natural or physical environmental effects.

**8) Are the effects on the quality of 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 Council during alternative development. The proposed action was developed through the Council 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 2014 Council 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.

**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 2014 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. These fisheries are managed in a sustainable manner. Managers account for impacts from other fisheries in developing the alternatives. These fisheries are conducted consistent with ESA consultations, which serve to protect multiple stocks in the mixed-stock ocean salmon fishery, especially where ocean distributions overlap.

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

Response: No significant effects of this proposed action are anticipated on cultural, scientific, or historical resources. No ground disturbing activity is anticipated. In addition, tribes have representation on the Council 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. The fishing vessels participating in the proposed action would not increase the risk of introduction through ballast water or hull fouling. Disposition of the catch does not include any translocation of living marine resources, nor use of any nonindigenous 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.

**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 impact cumulative effects related to the proposed action, none were determined to result in substantial cumulative adverse effects.

*Finding of No Significant Impact*

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**Determination**

In view of the information presented in the EA and analysis prepared for the 2014 Ocean Salmon Fisheries Management Measures, including consistency with the Salmon FMP (PFMC 2012), 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.



Barry A. Thom

NMFS West Coast Region Deputy Administrator

4-23-14

Date